This document provides pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a minor, municipal permit. The discharge results from the operation of a 0.120 MGD wastewater treatment plant. This facility is located within the Commonwealth of Virginia but discharges to State of Maryland waters. As such, the proposed effluent limitations and special conditions contained within this permit will maintain the Water Quality Standards of both Maryland (COMAR26.08.02 et seq., effective 2 April 2012) and Virginia (9VAC25-260 et seq., effective 6 January 2011).

1.	Facility Name and Mailing Address:	Elysian Heights Sewage Treatment Plant P.O. Box 4000 Ashburn, VA 20146	SIC Code:	4952 WWTP
	Facility Location:	43254 Heavenly Circle Leesburg, VA 20176	County:	Loudoun
	Facility Contact Name:	Dale Hammes / General Manager	Telephone Number:	571-291-7700
	Facility Email Address:	dhammes@loudounwater.org		
2.	Permit No.:	VA0092380	Expiration Date:	8 December 2013
	Other VPDES Permits:	Not Applicable		
	Other Permits:	PWSID 6107555 – five (5) wells serving the community		
	E2/E3/E4 Status:	Not Applicable		
3.	Owner Name:	Loudoun County Sanitation Authority		
	Owner Contact / Title:	Dale Hammes / General Manager	Telephone Number:	571-291-7700
	Owner Email Address:	dhammes@loudounwater.org		
4.	Application Complete Date:	13 June 2013		
	Permit Drafted By:	Douglas Frasier	Date Drafted:	13 August 2013
	Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	19 August 2013
	Public Comment Period:	Start Date: 10 October 2013	End Date:	8 November 2013
5.	Receiving Waters Information:	See **Attachment 1** for the Flow Frequency Determination.		
	Receiving Stream Name:	Potomac River	Stream Code:	1aPOT
	Drainage Area at Outfall:	9,667 square miles	River Mile:	161.76
	Stream Basin:	Potomac River	Subbasin:	Potomac River
	Section:	02 – Washington Metropolitan Area	Stream Class:	MDE – II
	Special Standards:	MDE – Use I-P	Waterbody ID:	MDE Basin (02-14-03-01)
	7Q10 Low Flow:	565.7 MGD	7Q10 High Flow:	60,760.3 MGD
	1Q10 Low Flow:	493.1 MGD	1Q10 High Flow:	123,550.8 MGD
	30Q10 Low Flow:	668.0 MGD	30Q10 High Flow:	28,508.0 MGD
	Harmonic Mean Flow:	Undetermined	30Q5 Flow:	24,403.2 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

✓	State Water Control Law	___	EPA Guidelines
✓	Clean Water Act	✓	Water Quality Standards (MD and VA)
✓	VPDES Permit Regulation	___	Other
✓	EPA NPDES Regulation		

7. Licensed Operator Requirements: Class III

8. Reliability Class: Class II

9. Permit Characterization:

___ Private	✓ Effluent Limited	✓ Possible Interstate Effect
___ Federal	✓ Water Quality Limited	___ Compliance Schedule
___ State	___ Whole Effluent Toxicity Program	___ Interim Limits in Permit
✓ POTW	___ Pretreatment Program	___ Interim Limits in Other Document
✓ TMDL		

10. Wastewater Sources and Treatment Description:

The treatment plant serves a planned housing community in northern Loudoun County. Currently there is a population of approximately 674 residents with a planned total of 1,000 residents upon complete build out.

The facility is an extended aeration package plant configured to operate as two trains. Treatment of the waste stream consists of a manual barscreen, extended aeration, clarification, chlorination, dechlorination and post aeration. The facility is designed to treat 120,000 gallons per day; however, is currently treating approximately 42,000 gallons per day.

See **Attachment 2** for a facility schematic/diagram.

TABLE 1
OUTFALL DESCRIPTION

Number	Discharge Sources	Treatment	Design Flow	Latitude / Longitude
001	Domestic Wastewater	See Section 10	0.120 MGD	39° 14′ 50″ / 77° 29′ 16″
See **Attachment 3** for the Leesburg topographic map.				

11. Sludge Treatment and Disposal Methods:

Waste activated sludge (WAS) is pumped from the clarifiers to the aerated sludge holding tanks. The treatment plant has two (2) holding tanks with a combined capacity of 24,000 gallons. As needed, the digested sludge is removed by a licensed septic waste hauler and transported to the Broad Run Water Reclamation Facility (VA0091383) for further treatment and final disposal. The application package states that approximately six (6) dry metric tons was generated at this facility last year.

12. Discharges, Intakes and Monitoring Stations Within the Vicinity of Discharge:

TABLE 2
DISCHARGES, INTAKES & MONITORING STATIONS

ID / Permit Number	Facility Name	Type	Receiving Stream
Station POT1830	Maryland Department of Natural Resources – Shepherdstown (ambient monitoring station)	Located upstream of the discharge	
Station 01638500	USGS Gaging Station – Point of Rocks		
PWSID 6107300	Town of Leesburg Water Treatment Plant	Intake	Potomac River
VA0092282	Leesburg Water Pollution Control Facility	Municipal Discharge	Potomac River
PWSID 6059501	FCWA – J.J. Corbalis Water Treatment Plant	Intake	Potomac River
VA0024121	The Maderia School Wastewater Treatment Plant	Municipal Discharge	Difficult Run, UT
Station 01646500	USGS Gaging Station – Little Falls Pump Station	Located downstream of the discharge	
Station POT1183	Maryland Department of Natural Resources – Little Falls (ambient monitoring station)		

13. Material Storage:

TABLE 3
MATERIAL STORAGE

Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Sodium hypochlorite (12.5%)	3 – 4 barrels (55 gallons each)	Inside utility building
Sodium bisulfite (38% - 40%)		

14. Site Inspection: Performed by NRO Compliance Staff on 18 November 2010. See **Attachment 4** for the inspection summary. The entire inspection report may be reviewed via DEQ's Enterprise Content Management electronic filing system.

15. Receiving Stream Water Quality and Water Quality Standards:

a. Ambient Water Quality Data

This facility discharges to the mainstem Potomac River (Frederick County), which is under Maryland's jurisdiction. The Maryland Department of Natural Resources (DNR) has three monitoring stations located in the mainstem Potomac River. Station POT1595 is located approximately 3.6 miles upstream of Outfall 001 near Point of Rocks, whereas stations POT1471 and POT1472 are located approximately 8.7 miles downstream of the outfall, near White's Ferry.

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4
INFORMATION ON DOWNSTREAM 303(d) IMPAIRMENTS AND TMDLS

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA
Impairment Information in Maryland's 2012 Integrated Report						
Potomac River	Fishing	PCBs	2.5 miles	Medium priority, not within 2 years	---	---
	Aquatic Life	Total Nitrogen	33 miles	Chesapeake Bay 29 December 2010	NA	NA
		Total Phosphorus				

The full planning statement is found in **Attachment 5**.

c. Receiving Stream Water Quality Criteria

The mainstem of the Potomac River is Maryland waters. Outfall 001 discharges along the shoreline at the Maryland political boundary; thus, the discharge has the potential to affect Maryland waters. Title 26, Subtitle 08 of the Code of Maryland Regulations (Maryland Water Quality Standards), effective 2 April 2012, has been reviewed and the proposed limitations contained within comply with these regulations.

The receiving stream, per the Maryland Water Quality Criteria, has been designated as Use I-P water. The use goals include water contact recreation, protection of nontidal warmwater aquatic life and public water supply. The dissolved oxygen (D.O.) may not be less than 5.0 mg/L at any time and a pH of 6.5 – 8.5 standard units (S.U.) must be maintained.

Attachment 6 details other water quality criteria applicable to the receiving stream.

Ammonia:

Maryland and Virginia Water Quality Criteria for ammonia are dependent on instream and/or effluent pH and temperature. Ambient pH and temperature data were available from the Maryland Department of Natural Resources' Monitoring Station POT1471, upstream of the outfall (see Section 15.a.). Data utilized for determination of the ammonia criteria are presented in **Attachment 7**.

Effluent pH data from the December 2008 – May 2013 Discharge Monitoring Reports (DMRs) was used in the determination of the ammonia criterion. See **Attachment 8** for the 90 percentile pH derived values. Default temperature value of 25° C for summer and an assumed value of 15° C for winter were used since effluent temperature data was not readily available.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream and/or effluent hardness values (expressed as mg/L calcium carbonate). An average hardness of 137 mg/L for the receiving stream was ascertained during the 2008 issuance using data from the USGS monitoring station at Rock of Points Maryland (Station Number 1638500); located approximately 3.5 miles upstream of the discharge. It is staff's best professional judgement that this value is still valid and appropriate for use.

Since there is no effluent hardness data available, staff guidance suggests utilizing a default hardness value of 50 mg/L $CaCO_3$ for streams east of the Blue Ridge. The hardness-dependent metals criteria in **Attachment 6** are based on this default value.

Bacteria Criteria:

The Virginia Water Quality Standards at 9VAC25-260-170.A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 mL of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 mL)	126

[1]For a minimum of four weekly samples taken during any calendar month

The Maryland Water Quality Criteria Specific to Designated Uses (Code of Maryland Regulations 26.08.02.03-3.A) states that sewage discharges shall be disinfected to achieve the following criteria:

E. coli and enterococci bacteria per 100 mL of water for all areas shall be as follows:

	Geometric Mean[1]	Single Sample Maximum
Freshwater *E. coli* (N/100 mL)	126	235
Freshwater enterococci	33	61

[1]For two or more samples taken during any calendar month

d. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The Potomac River is located within the political boundaries of the State of Maryland. Therefore, the receiving stream has not been designated with a Virginia special Standard.

This segment of the Potomac River has been designated as Use I-P. The Maryland Water Quality Standards (Code of Maryland Regulations 26.08.02.02.B.) states that waters designated as Use I-P must meet water contact recreation, protection of aquatic life and public water supply.

e. Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on 17 June 2013 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened species were identified within a 3 mile radius of the discharge: wood turtle; upland sandpiper (song bird); loggerhead shrike (song bird); Henslow's sparrow; green floater (mussel); migrant loggerhead shrike (song bird). The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened species found near the discharge.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 2 based on the fact that this segment of the Potomac River has not been listed as impaired and has been designated with Use I-P by the State of Maryland. No significant degradation to the existing water quality will be allowed. In accordance with current DEQ guidance, no significant lowering of water quality is to occur where permit limits are based on the following:

- The dissolved oxygen in the receiving stream is not lowered more than 0.2 mg/L from the existing levels;
- The pH of the receiving stream is maintained within the range 6.0 – 9.0 S.U.;
- There is compliance with all temperature criteria applicable to the receiving stream;
- No more than 25% of the unused assimilative capacity is allocated for toxic criteria established for the protection of aquatic life; and
- No more than 10% of the unused assimilative capacity is allocated for criteria for the protection of human health.

The antidegradation policy also prohibits the expansion of mixing zones to Tier 2 waters unless the requirements of 9VAC25-260-30.A.2 are met. The draft permit is not proposing an expansion of the existing mixing zone.

In accordance with the Maryland Water Quality Standards (COMAR 26.08.02.03-3), the following criteria apply:

- The dissolved oxygen concentration may not be less than 5 mg/L at any time;
- The normal pH values may not be less than 6.5 S.U. or greater than 8.5 S.U.;
- There is compliance with all temperature criteria applicable to the receiving stream;
- Turbidity may not exceed levels detrimental to aquatic life; and
- All toxic substance criteria apply.

17. Effluent Screening, Wasteload Allocation and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are then calculated on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

a. Effluent Screening

Effluent data obtained from the permit application and December 2008 – May 2013 Discharge Monitoring Reports (DMRs) has been reviewed and determined to be suitable for evaluation.

Please see **Attachment 8** for a summary of effluent data.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o[Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The Water Quality Standards contain two distinct mixing zone requirements. The first requirement is general in nature and requires the "use of mixing zone concepts in evaluating permit limits for acute and chronic standards in 9VAC25-260-140.B.". The second requirement is specific and establishes special restrictions for regulatory mixing zones "established by the Board".

The Department of Environmental Quality uses a simplified mixing model to estimate the amount of mixing of a discharge with the receiving stream within specified acute and chronic exposure periods. The simplified model contains the following assumptions and approximations:

- The effluent enters the stream from the bank, either via a pipe, channel or ditch.
- The effluent velocity isn't significantly greater (no more than 1 – 2 ft/sec greater) than the stream velocity.
- The receiving stream is much wider than its depth (width at least ten times the depth).
- Diffusive mixing in the longitudinal direction (lengthwise) is insignificant compared with advective transport (flow).
- Complete vertical mixing occurs instantaneously at the discharge point. This is assumed since the stream depth is much smaller than the stream width.
- Lateral mixing (across the width) is a linear function of distance downstream.
- The effluent is neutrally buoyant (e.g. the effluent discharge temperature and salinity are not significantly different from the stream's ambient temperature and salinity).
- Complete mix is determined as the point downstream where the variation in concentration is 20% or less across the width and depth of the stream.
- The velocity of passing and drifting organisms is assumed equal to the stream velocity.

If it is suitably demonstrated that a reasonable potential for lethality or chronic impacts within the physical mixing area doesn't exist, then the basic complete mix equation, with 100% of the applicable stream flow, is appropriate. If the mixing analysis determines there is a potential for lethality or chronic impacts within the physical mixing area, then the proportion of stream flow that has mixed with the effluent over the allowed exposure time is used in the basic complete mix equation. As such, the wasteload allocation equation is modified to account for the decimal fraction of critical flow (f).

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a wastewater treatment plant treating domestic sewage and total residual chlorine may be present since chlorine is utilized for disinfection. As such, **Attachment 9** details the mixing analysis results and **Attachment 6** presents WLA derivations for these pollutants.

Antidegradation Wasteload Allocations (AWLAs)

Since the receiving stream has been determined to be Tier II water, staff must also determine antidegradation wasteload allocations (AWLAs). The steady state complete mix equation is used substituting the antidegradation baseline (C_b) for the in-stream water quality criteria (C_o):

$$AWLA = \frac{C_b(Q_e + Q_s) - (C_s)(Q_s)}{Q_e}$$

Where:
- AWLA = Antidegradation-based wasteload allocation
- C_b = In-stream antidegradation baseline concentration
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- C_s = Mean background concentration of parameter in the receiving stream.

Calculated AWLAs for the pollutants noted in b. above are presented in **Attachment 6.**

c. Effluent Limitations and Monitoring, Outfall 001 – Toxic Pollutants

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with AWLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1). Ammonia as N/TKN:

Staff utilized the ambient pH and temperature data for the receiving stream and December 2008 – May 2013 effluent pH data in order to derive ammonia limitations. Since effluent temperature data was not readily available, staff utilized a default value of 25° C for summer and an assumed value of 15° C for winter. See **Attachment 10** for the derived ammonia limitations.

It was determined that no limits are warranted. However, the previous permit included monitoring for this pollutant based on the Maryland discharge permit. It is staff's best professional judgement that monitoring continues with this reissuance.

2). Total Residual Chlorine:

Chlorine is used for disinfection and is potentially present in the discharge. Staff calculated WLAs for TRC using current critical flows and the mixing allowance. The calculated acute and chronic TRC WLAs were greater than 4.0 mg/L (see **Attachment 6**). In accordance with current DEQ guidance, an upper, technology based limit is recommended where the chlorine limit, based solely on dilution, would be excessive. Staff substituted a maximum value of 4.0 mg/L for both the acute and chronic WLAs and used a default data point of 20 mg/L and derived a monthly average of 2.0 mg/L and a weekly average limit of 2.4 mg/L for this discharge (see **Attachment 11**).

During the 2008 issuance, staff carried forward limits of 0.0 mg/L (non-detect) found in the Maryland discharge permit. However, current DEQ guidance and practice suggests that chlorine limitations be actual numbers even if they are less than the quantification level set at 0.1 mg/L. The calculated limitations above would not comply with the antibacksliding provisions found in 9VAC25-31-220.L.; therefore, it is staff's best professional judgement that the chlorine criteria found in **Attachment 6** be imposed as limits for this facility. The criteria are consistent with other discharge permits that have chlorine limits and is below the quantification level (i.e. non-detect).

It is proposed that total residual chlorine limits of 0.011 mg/L and 0.020 mg/L for a monthly and weekly average, respectively, be imposed for this facility.

See Section 18 of the Fact Sheet for further rationale.

3). Metals/Organics:

It is staff's best professional judgement, based on the source of the waste stream and the derived criterion and wasteload allocations, that limits are not warranted for this facility at this time.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), biochemical oxygen demand-5 day (BOD_5), total suspended solids (TSS), ammonia as N, *E. coli* and pH limitations are proposed.

BOD_5 limitations were carried forward during the 2008 issuance and meet the federal secondary treatment requirements.

It is staff's practice to equate the total suspended solids limits with the BOD_5 limits since the two pollutants are closely related in terms of treatment of domestic sewage.

Dissolved oxygen and pH limitations were based on the Maryland Water Quality Standards at COMAR 26.08.02.03-3.

Chlorine limitations are set in order to ensure protection of downstream uses since the receiving stream has been designated as Use I-P; which must meet water contact recreation, protection of aquatic life and public water supply.

Total nitrogen and total phosphorus monitoring was carried forward in 2008 and will be with this reissuance due to downstream impairments for nutrients.

E. coli limitations are in accordance with the Virginia Water Quality Standards 9VAC25-260-170 and are equivalent to the State of Maryland Water Quality Standards COMAR 26.08.02.03-3.A.

e. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following table. Limits or monitoring requirements were established for dissolved oxygen, pH, biochemical oxygen demand-5 day, total suspended solids, ammonia as N, *E. coli*, total residual chlorine, total nitrogen and total phosphorus.

The limit for total suspended solids is based on best professional judgement.

It is staff's best professional judgement that monitoring for total nitrogen and total phosphorus continue with this reissuance based on the noted downstream aquatic life impairments due to nutrient enrichment.

The mass loading (kg/d) for BOD_5 and TSS monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then by a conversion factor of 3.785.

Sample types are in accordance with the recommendations in the VPDES Permit Manual.

The reduced sampling frequency included with this reissuance was initially requested by the permittee in 2008 and will be carried forward. The proposed reductions are consistent with the current VPDES Permit Manual. See Section 24 for further details.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD and TSS (or 65% for equivalent to secondary). The permittee conducts monthly influent monitoring for process control purposes. Staff reviewed four (4) monthly influent monitoring periods (February 2013 – May 2013) and the results indicate that this facility is achieving > 85% removal consistently. Therefore, it is staff's best professional judgement that influent monitoring on an annual basis not be included with this reissuance since the permittee has demonstrated the removal efficiency of this treatment works.

18. Antibacksliding:

The proposed permitting action pertaining to total residual chlorine is consistent with current guidance and agency practice. Previously, staff had carried forward those non-detect limits that were present in the Maryland discharge permit. The proposed limitations found in Section 17.c.2. are essentially non-detect by laboratory standards since they are below the quantification level for that pollutant. DEQ guidance suggests actual numbers for total residual chlorine be included in permits. This action ensures that the receiving stream and downstream uses are protected at all times.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.120 MGD.
Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.5 S.U.	8.5 S.U.	1/D	Grab
BOD_5	1,3,4	30 mg/L 14 kg/day	45 mg/L 21 kg/day	NA	NA	1/W [b]	8H-C
Total Suspended Solids (TSS)	1,2	30 mg/L 14 kg/day	45 mg/L 21 kg/day	NA	NA	1/W [b]	8H-C
Dissolved Oxygen (DO)	3,4	NA	NA	5.0 mg/L	NA	1/D	Grab
Ammonia, as N	2	NL mg/L	NL mg/L	NA	NA	1/W [b]	8H-C
E. coli (Geometric Mean) [a]	3,4	126 n/100mL	NA	NA	NA	1/W [b]	Grab
Total Residual Chlorine (after contact tank)	5	NA	NA	1.5 mg/L	NA	1/D [b]	Grab
Total Residual Chlorine (after dechlorination)	2,3	0.011 mg/L	0.020 mg/L	NA	NA	1/D [b]	Grab
Total Nitrogen	2	NL mg/L	NA	NA	NA	1/M [b]	8H-C
Total Phosphorus	2	NL mg/L	NA	NA	NA	1/M [b]	8H-C

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. MD Water Quality Standards
4. VA Water Quality Standards
5. DEQ Disinfection Guidance

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
1/W = Once every week.
1/M = Once every month.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

[a] Samples shall be collected between the hours of 8 A.M. and 4 P.M.

[b] See Section 24.

20. Other Permit Requirements:

Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions

These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-70 and by the Water Quality Standards at 9VAC25-260-170. Minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be < 1.5 mg/L with any TRC < 0.6 mg/L considered a system failure. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions:

a. 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b. Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200.B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200.C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class III operator.

f. Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet Class II reliability.

g. Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

h. Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2., and 420 through 720 and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

i. Effluent Monitoring Frequencies. If the facility permitted herein is issued a Warning Letter, a Notice of Violation or be subject to an active enforcement action related to effluent limitation violations, the recommended monitoring frequencies found in Section 24 of this Fact Sheet shall be reinstated and shall remain in effect for a period of at least six (6) months upon written notification from DEQ. If the facility remains in compliance during the aforementioned period of at least six (6) months, the permittee may submit a written request reinstating the reduced monitoring frequency.

j. Discharge Monitoring Report Submission. A duplicate signed copy of each Discharge Monitoring Report (DMR) and any compliance item/report shall be submitted to the Maryland Department of the Environment for review. Reports shall be submitted to:

Compliance Program
Water Management Administration
Department of the Environment
1800 Washington Boulevard
Montgomery Park Business Center, STE 425
Baltimore, Maryland 21230-1708

k. Unauthorized, Unusual or Extraordinary Discharge Notification. Due to the proximity of major, regional drinking water supply intakes downstream of this discharge, the permittee shall notify the Fairfax County Water Authority and the Maryland Department of the Environment within twelve (12) hours of an unauthorized, unusual or extraordinary discharge.

l. TMDL Reopener. This special condition allows the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.

22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:

- The Effluent Monitoring Frequencies special condition was included with this reissuance.

b. Monitoring and Effluent Limitations:

- Total residual chlorine limitations were changed from 0.0 mg/L to 0.011 mg/L and 0.020 mg/L for monthly and weekly averages, respectively. See Sections 17.c.2 and 18 for further details.

- *E. coli* sampling hours were adjusted to reflect the actual peak flows associated with this facility. See Section 24 for further explanation.

24. Variances/Alternate Limits or Conditions:

During the 2008 issuance, the permittee requested that the monitoring frequency be reduced based on low flows to the plant. Given that the influent is only 35% of the plant design flow, staff concurred that the recommended monitoring frequencies could be reduced for the following parameters with this reissuance:

Parameters	Monitoring Frequencies	
	VPDES Permit Manual Recommendation	Proposed Reduction
BOD_5, TSS, Ammonia and *E. coli*	three days per week (3D/W)	once per week (1/W)
Total Nitrogen and Total Phosphorus	once every two weeks (1/2W)	once per month (1/M)
Total Residual Chlorine	three times per day (3/D)	once per day (1/D)

A review of discharge monitoring report (DMR) data did not indicate effluent violations during the previous permit term.

However, should the monthly average flow reach 75% of the design capacity for any three (3) consecutive months, the reduced monitoring frequencies shall cease and those frequencies listed above shall become effective and shall remain in effect until the permit expiration date.

In addition, the current VPDES Permit Manual states that bacterial samples shall be collected between the hours of 10 AM and 4 PM. Discussions with Loudoun Water revealed that peak usage occurs prior to 10 AM based on the fact that this facility serves a bedroom community only and requested that the hours be adjusted. Staff concurred and adjusted the hours of collection between 8 AM and 4 PM to reflect peak usage at this facility.

25. Public Notice Information:

First Public Notice Date: 9 October 2013 Second Public Notice Date: 16 October 2013

Public Notice Information is required by 9VAC25-31-280.B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office; 13901 Crown Court, Woodbridge, VA 22193; Telephone No. 703-583-3873; Douglas.Frasier@deq.virginia.gov. See **Attachment 12** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. Additional Comments:

Previous Board Action(s):	None.
Staff Comments:	No comments were received.
Public Comment:	No comments were received during the public notice.

Fact Sheet Attachments

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Elysian Heights Sewage Treatment Plant
VA0092380
2013 Reissuance

Attachment 1	Flow Frequency Determination
Attachment 2	Facility Schematic/Diagram
Attachment 3	Topographic Map
Attachment 4	Site Inspection Report Summary
Attachment 5	Planning Statement
Attachment 6	Water Quality Criteria / Wasteload Allocation Analysis
Attachment 7	Ambient pH and temperature data
Attachment 8	December 2008 – May 2013 Effluent Data
Attachment 9	Mixing Analysis
Attachment 10	Ammonia Limitation Derivation
Attachment 11	Chlorine Limitation Derivation
Attachment 12	Public Notice

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court — Woodbridge, VA 22193

TO: VPDES Issuance File VA0092380

DATE: 22 September 2008

FROM: Douglas Frasier

SUBJECT: Flow Frequency Determination of VPDES Permit No. VA0092380
Elysian Heights Sewage Treatment Plant

The Elysian Heights STP discharges to the Potomac River northeast of Lucketts, Virginia. Stream flow frequencies are required at this site for use in the development of effluent limitations for this VPDES permit.

There is an USGS Gaging Station at Point of Rocks, Maryland (#01638500), upstream from the Outfall 001. The referenced gaging station has a drainage area of 9,651 square miles. The NRO Water Resource Planners ascertained that the drainage area above the Outfall for the Elysian Heights STP is 9,667 square miles.

The flow frequencies shall be determined using values at the USGS Gaging Station at Point of Rocks, Maryland and adjusting them by proportional drainage areas.

Potomac River at Point of Rocks, MD (#01638500)

Drainage area	=	9,651 sq. mi.
1Q10	=	761.7 cfs
7Q10	=	873.9 cfs
30Q5	=	37,695.8 cfs
30Q10	=	1,031.9 cfs
High flow 30Q10	=	44,036.6 cfs
High flow 1Q10	=	190,850 cfs
High flow 7Q10	=	93,856.9 cfs

Potomac River at Elysian Heights STP at Outfall 001

Drainage area	=	9667 sq. mi.	
1Q10	=	763.0 cfs	493.1 MGD*
7Q10	=	875.3 cfs	565.7 MGD*
30Q5	=	37,758.3 cfs	24,403.2 MGD*
30Q10	=	1,033.6 cfs	668.0 MGD*
High flow 30Q10	=	44,109.6 cfs	28,508.0 MGD*
High flow 1Q10	=	191,166.4 cfs	123,550.8 MGD*
High flow 7Q10	=	94,012.5 cfs	60,760.3 MGD*

*Conversion to MGD = (cfs flow measurement) x (0.6463)

The high flow months are December - May

USGS
science for a changing world

StreamStats Data-Collection Station Report

USGS Station Number 01638500
Station Name POTOMAC RIVER AT POINT OF ROCKS, MD

Click here to link to available data on NWIS-Web for this site.

Descriptive Information

Station Type	Gaging Station, continuous record
Regulated?	Undefined
Period of Record	
Remarks	
Latitude (degrees NAD83)	39.27358333
Longitude (degrees NAD83)	-77.54311111
Hydrologic unit code	02070008
Local Basin	-
County	021-Frederick
MCD	-
Directions to station	

Physical Characteristics

Characteristic Name	Value	Units	Citation Number
24_Hour_2_Year_Precipitation	3.0500	inches	31
Contributing_Drainage_Area	9651.00	square miles	31
Drainage_Area	9651.00	square miles	31
Main_Channel_Length	270.900	miles	31
Mean_Annual_Precipitation	39.500	inches	31
Mean_Annual_Snowfall	30.600	inches	31
Mean_Basin_Elevation	1356.00	feet	31
Mean_Min_January_Temperature	23.000	degrees F	31
Mean_Max_July_Temperature	86.000	degrees F	31
Percent_Forest	59.000	percent	31
Percent_Storage	0.0440	percent	31
Soil_Infiltration	3.5600	inches	31

Stream_Slope_10_and_85_Method	5.5600	feet per mi	31

Streamflow Statistics

Statistic Name	Value	Units	Citation Number
Peak-Flow Statistics			
10_Year_Peak_Flood	221000	cubic feet per second	31
100_Year_Peak_Flood	439000	cubic feet per second	31
2_Year_Peak_Flood	104000	cubic feet per second	31
200_Year_Peak_Flood	523000	cubic feet per second	31
25_Year_Peak_Flood	298000	cubic feet per second	31
5_Year_Peak_Flood	168000	cubic feet per second	31
50_Year_Peak_Flood	364000	cubic feet per second	31
500_Year_Peak_Flood	650000	cubic feet per second	31
Log_Mean_of_Annual_Peaks	5.0240	Log base 10	31
Log_Skew_of_Annual_Peaks	0.1870	Log base 10	31
Log_STD_of_Annual_Peaks	0.2320	Log base 10	31
Mean_Annual_Flood	67000.0	cubic feet per second	31
Peak_years_with_historic_adjustment	102.000	years	31
Systematic_peak_years	96.000	years	31
WRC_Mean	5.0300	Log base 10	31
WRC_Skew	0.3260	Log base 10	31
WRC_STD	0.2390	Log base 10	31
Flood-Volume Statistics			
1_Day_10_Year_Maximum	190850	cubic feet per second	31
1_Day_100_Year_Maximum	352997	cubic feet per second	31
1_Day_2_Year_Maximum	94081.6	cubic feet per second	31
1_Day_20_Year_Maximum	235422	cubic feet per second	31
1_Day_25_Year_Maximum	250464	cubic feet per second	31
1_Day_5_Year_Maximum	148843	cubic feet per second	31
1_Day_50_Year_Maximum	299658	cubic feet per second	31
15_Day_10_Year_Maximum	63719.6	cubic feet per second	31
15_Day_100_Year_Maximum	95436.6	cubic feet per second	31
15_Day_2_Year_Maximum	37245.0	cubic feet per second	31
15_Day_20_Year_Maximum	73578.4	cubic feet per second	31
15_Day_25_Year_Maximum	76675.2	cubic feet per second	31
15_Day_5_Year_Maximum	53270.5	cubic feet per second	31
15_Day_50_Year_Maximum	86136.7	cubic feet per second	31
3_Day_10_Year_Maximum	146427	cubic feet per second	31
3_Day_100_Year_Maximum	266581	cubic feet per second	31
3_Day_2_Year_Maximum	73796.2	cubic feet per second	31

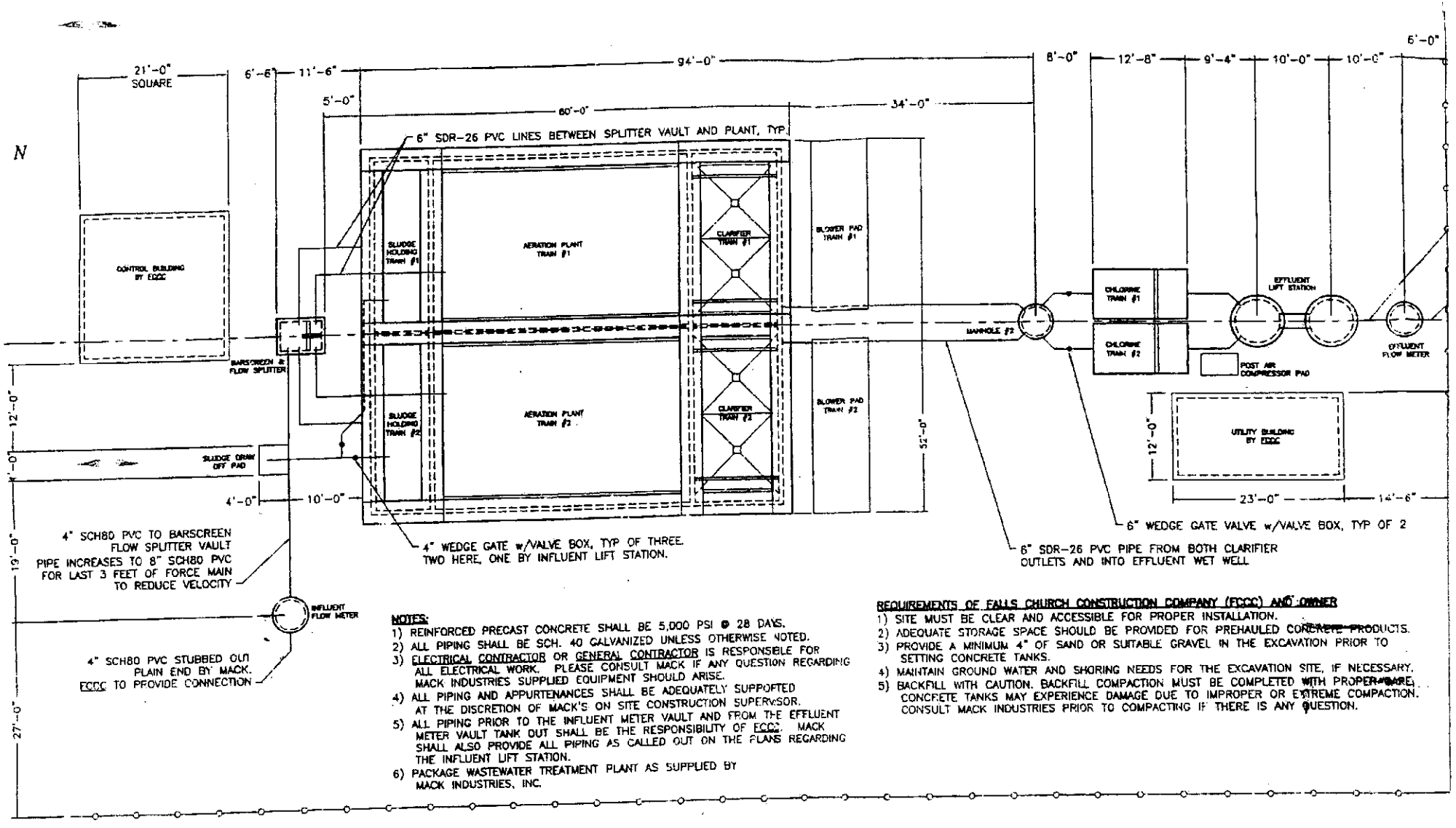
3_Day_20_Year_Maximum	179592	cubic feet per second	31
3_Day_25_Year_Maximum	190756	cubic feet per second	31
3_Day_5_Year_Maximum	115030	cubic feet per second	31
3_Day_50_Year_Maximum	227191	cubic feet per second	31
30_Day_10_Year_Maximum	44036.6	cubic feet per second	31
30_Day_100_Year_Maximum	62196.9	cubic feet per second	31
30_Day_2_Year_Maximum	27521.8	cubic feet per second	31
30_Day_20_Year_Maximum	49842.3	cubic feet per second	31
30_Day_25_Year_Maximum	51634.0	cubic feet per second	31
30_Day_5_Year_Maximum	37695.8	cubic feet per second	31
30_Day_50_Year_Maximum	57020.9	cubic feet per second	31
7_Day_10_Year_Maximum	93856.9	cubic feet per second	31
7_Day_100_Year_Maximum	157044	cubic feet per second	31
7_Day_2_Year_Maximum	50908.8	cubic feet per second	31
7_Day_20_Year_Maximum	112070	cubic feet per second	31
7_Day_25_Year_Maximum	118051	cubic feet per second	31
7_Day_5_Year_Maximum	75894.4	cubic feet per second	31
7_Day_50_Year_Maximum	137115	cubic feet per second	31
Low-Flow Statistics			
1_Day_10_Year_Low_Flow	761.701	cubic feet per second	31
1_Day_2_Year_Low_Flow	1219.17	cubic feet per second	31
1_Day_20_Year_Low_Flow	667.283	cubic feet per second	31
14_Day_10_Year_Low_Flow	926.700	cubic feet per second	31
14_Day_2_Year_Low_Flow	1448.44	cubic feet per second	31
14_Day_20_Year_Low_Flow	820.979	cubic feet per second	31
3_Day_10_Year_Low_Flow	818.904	cubic feet per second	31
3_Day_2_Year_Low_Flow	1283.69	cubic feet per second	31
3_Day_20_Year_Low_Flow	722.090	cubic feet per second	31
30_Day_10_Year_Low_Flow	1031.87	cubic feet per second	31
30_Day_2_Year_Low_Flow	1610.98	cubic feet per second	31
30_Day_20_Year_Low_Flow	918.358	cubic feet per second	31
7_Day_10_Year_Low_Flow	873.889	cubic feet per second	31
7_Day_2_Year_Low_Flow	1360.40	cubic feet per second	31
7_Day_20_Year_Low_Flow	772.119	cubic feet per second	31
7_Day_5_Year_Low_Flow	1016.23	cubic feet per second	31
90_Day_10_Year_Low_Flow	1313.75	cubic feet per second	31
90_Day_2_Year_Low_Flow	2327.50	cubic feet per second	31
90_Day_20_Year_Low_Flow	1129.89	cubic feet per second	31
Low_flow_years	84.000	years	31
Flow-Duration Statistics			
1_Percent_Duration	65162	cubic feet per second	41
10_Percent_Duration	20900	cubic feet per second	41
20_Percent_Duration	13100	cubic feet per second	41
25_Percent_Duration	11000	cubic feet per second	41

30_Percent_Duration	9290	cubic feet per second	41
40_Percent_Duration	7050	cubic feet per second	41
5_Percent_Duration	30600	cubic feet per second	41
50_Percent_Duration	5380	cubic feet per second	41
60_Percent_Duration	4080	cubic feet per second	41
70_Percent_Duration	3080	cubic feet per second	41
75_Percent_Duration	2660	cubic feet per second	41
80_Percent_Duration	2290	cubic feet per second	41
90_Percent_Duration	1680	cubic feet per second	41
95_Percent_Duration	1340	cubic feet per second	41
99_Percent_Duration	940	cubic feet per second	41
Annual Flow Statistics			
Daily_flow_years	89.000	years	31
Mean_Annual_Flow	9422.00	cubic feet per second	31
Stand_Dev_of_Mean_Annual_Flow	2880.00	cubic feet per second	31
Monthly Flow Statistics			
April_Mean_Flow	16560.0	cubic feet per second	31
April_STD	8658.00	cubic feet per second	31
August_Mean_Flow	4301.00	cubic feet per second	31
August_STD	3806.00	cubic feet per second	31
December_Mean_Flow	8352.00	cubic feet per second	31
December_STD	6309.00	cubic feet per second	31
February_Mean_Flow	14450.0	cubic feet per second	31
February_STD	8005.00	cubic feet per second	31
January_Mean_Flow	11160.0	cubic feet per second	31
January_STD	6639.00	cubic feet per second	31
July_Mean_Flow	4531.00	cubic feet per second	31
July_STD	2806.00	cubic feet per second	31
June_Mean_Flow	8190.00	cubic feet per second	31
June_STD	5988.00	cubic feet per second	31
March_Mean_Flow	19640.0	cubic feet per second	31
March_STD	10380.0	cubic feet per second	31
May_Mean_Flow	12150.0	cubic feet per second	31
May_STD	7066.00	cubic feet per second	31
November_Mean_Flow	5201.00	cubic feet per second	31
November_STD	4136.00	cubic feet per second	31
October_Mean_Flow	5163.00	cubic feet per second	31
October_STD	6391.00	cubic feet per second	31
September_Mean_Flow	3520.00	cubic feet per second	31
September_STD	3282.00	cubic feet per second	31
General Flow Statistics			
Average_daily_streamflow	9510.902	cubic feet per second	41
Maximum_daily_flow	434000	cubic feet per second	41
Minimum_daily_flow	540	cubic feet per second	41

Std_Dev_of_daily_flows	13729.221	cubic feet per second	41
Base_Flow_Statistics			
Average_BFI_value	0.519	dimensionless	42
Number_of_years_to_compute_BFI	108	years	42
Std_dev_of_annual_BFI_values	0.068	dimensionless	42

Citations

Citation Number	Citation Name
31	Imported from Basin Characteristics file
41	Wolock, D.M., 2003, Flow characteristics at U.S. Geological Survey streamgages in the conterminous United States: U.S. Geological Survey Open-File Report 03-146, digital data set, available on World Wide Web at URL http://water.usgs.gov/lookup/getspatial?qsitesdd
42	Wolock, D.M., 2003, Base-flow index grid for the conterminous United States: U.S. Geological Survey Open-File Report 03-263, digital data set, available on World Wide Web at URL http://water.usgs.gov/lookup/getspatial?bfi48grd



NOTES:

1) REINFORCED PRECAST CONCRETE SHALL BE 5,000 PSI @ 28 DAYS.
2) ALL PIPING SHALL BE SCH. 40 GALVANIZED UNLESS OTHERWISE NOTED.
3) ELECTRICAL CONTRACTOR OR GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL WORK. PLEASE CONSULT MACK IF ANY QUESTION REGARDING MACK INDUSTRIES SUPPLIED EQUIPMENT SHOULD ARISE.
4) ALL PIPING AND APPURTENANCES SHALL BE ADEQUATELY SUPPORTED AT THE DISCRETION OF MACK'S ON SITE CONSTRUCTION SUPERVISOR.
5) ALL PIPING PRIOR TO THE INFLUENT METER VAULT AND FROM THE EFFLUENT METER VAULT TANK OUT SHALL BE THE RESPONSIBILITY OF FCCC. MACK SHALL ALSO PROVIDE ALL PIPING AS CALLED OUT ON THE PLANS REGARDING THE INFLUENT LIFT STATION.
6) PACKAGE WASTEWATER TREATMENT PLANT AS SUPPLIED BY MACK INDUSTRIES, INC.

REQUIREMENTS OF FALLS CHURCH CONSTRUCTION COMPANY (FCCC) AND OWNER

1) SITE MUST BE CLEAR AND ACCESSIBLE FOR PROPER INSTALLATION.
2) ADEQUATE STORAGE SPACE SHOULD BE PROVIDED FOR PREHAULED CONCRETE PRODUCTS.
3) PROVIDE A MINIMUM 4" OF SAND OR SUITABLE GRAVEL IN THE EXCAVATION PRIOR TO SETTING CONCRETE TANKS.
4) MAINTAIN GROUND WATER AND SHORING NEEDS FOR THE EXCAVATION SITE, IF NECESSARY.
5) BACKFILL WITH CAUTION. BACKFILL COMPACTION MUST BE COMPLETED WITH PROPER CARE. CONCRETE TANKS MAY EXPERIENCE DAMAGE DUE TO IMPROPER OR EXTREME COMPACTION. CONSULT MACK INDUSTRIES PRIOR TO COMPACTING IF THERE IS ANY QUESTION.

Attachment 2

Attachment 3

Technical Inspection Summary-

- **Overall condition of the facility is neat and well maintained.**

- **The recorded Total Residual Chlorine (TRC) results for the chlorine contact basin appear to be unusually high through October 2010. Mr. Spitzer told me that this seems to be due to chlorine building up in the basin over night when flows are lower and the water does not move through as quickly. Operators have because feeding chlorine using a timer at night to reduce the amount added to the contact basin, which has helped to reduce the TRC in the water.**

- **Permit VA0092380 requires an eight hour flow proportional composite sample for the final effluent for compliance monitoring. Operators have been collecting 48 samples over a 24 hour monitoring period, but these samples have not been flow proportional. While the permit allows non- flow proportional composite samples, it must be documented that the plant flow does not vary by more than 10% over the sampling period.**

RECOMMENDATIONS:

- **Rags that are pulled out of the aeration basin are generally left on top of the grating over the basins to dry, then added to the rags pile at the bar screen to be collected by the septic hauler. DEQ recommends that rags not be left out in the open- in addition to having a detrimental (sloppy) appearance, these pile could attract birds and other wildlife and end up being spread around the area. Rags should be stored in a closed container, such as a trash can, and properly disposed of (re: pg VII-8 of O&M manual).**

- **The Operation and Maintenance (O&M) manual was written while this facility was discharging under a Maryland Discharge Permit and updates are needed to reflect current conditions. Some examples are:**

  O&M references Maryland discharge permit and limits - need to change to VPDES, and add VA contact information.

  O&M states operators will be at the facility at least 8 hours daily - operators are currently on site about 4 hours daily.

  The staff chart needs to be updated.

  The O&M manual states that Waste Activated Sludge is pumped from the waste sludge tank and hauled to the Blue Plains interceptor. The operators stated that waste sludge is hauled to the Broad Run Water Reclamation Facility (BRWRF). This item should be updated in the O&M Manual.

- **Either verify that the plant flow rate does not vary by moth than 10% over the time period that composite samples are collected, or program the automatic composite sampler to collect flow proportional aliquots.**

To:	Douglas Frasier
From:	Jennifer Carlson
Date:	30 July 2013
Subject:	Planning Statement for Elysian Heights
Permit Number:	VA0092380

Information for Outfall 001:

Discharge Type:	Municipal, Minor
Discharge Flow:	0.120 MGD
Receiving Stream:	Potomac River
Latitude / Longitude:	39° 14′ 50″ / 77° 29′ 16″
Rivermile:	161.76
Streamcode:	1aPOT
Waterbody:	MDE Basin 02-14-03-01
Water Quality Standards:	MDE – Designated Use I-P (Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply)
Drainage Area:	9,667 square miles

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

   This facility discharges to the mainstem Potomac River (Frederick County), which is under Maryland's jurisdiction. The Maryland Department of Natural Resources (DNR) has three monitoring stations located in the mainstem Potomac River. Station POT1595 is located approximately 3.6 miles upstream of Outfall 001 near Point of Rocks, whereas stations POT1471 and POT1472 are located approximately 8.7 miles downstream of the outfall, near White's Ferry.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

   No. The mainstem of the Potomac River in Frederick County is not listed on Maryland's 2012 303(d) list.

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

   Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in Maryland's 2012 Integrated Report							
Potomac River	Fishing	PCBs	2.5 miles	No	---	---	Medium priority, not within 2 years
	Aquatic Life	Total Nitrogen Total Phosphorus	33 miles	Chesapeake Bay 12/29/2010	N/A	N/A	---

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

   There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

   There are no public water supply intakes located within 5 miles of this discharge.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Elysian Heights STP Permit No.: VA0092380

Receiving Stream: Potomac River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	137 mg/L	1Q10 (Annual) =	493.1 MGD	Annual - 1Q10 Mix =	25.67 %	Mean Hardness (as CaCO3) =	50 mg/L
90% Temperature (Annual) =	26.9 deg C	7Q10 (Annual) =	565.7 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	25 deg C
90% Temperature (Wet season) =	8.2 deg C	30Q10 (Annual) =	668 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	15 deg C
90% Maximum pH =	8.1 SU	1Q10 (Wet season) =	123551 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.8 SU
10% Maximum pH =	7.7 SU	30Q10 (Wet season)	28508 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	6.7 SU
Tier Designation (1 or 2) =	2	30Q5 =	24403 MGD			Discharge Flow =	0.12 MGD
Public Water Supply (PWS) Y/N? =	y	Harmonic Mean =	MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	1.4E+08	2.0E+08	--	--	6.7E+01	9.9E+01	--	--	1.4E+07	2.0E+07	--	--	**1.4E+07**	**2.0E+07**
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	1.2E+06	1.9E+06	--	--	6.1E-01	9.3E-01	--	--	1.2E+05	1.9E+05	--	--	**1.2E+05**	**1.9E+05**
Acrylonitrile[C]	0	--	--	5.1E-01	2.5E+00	--	--	5.1E-01	2.5E+00	--	--	5.1E-02	2.5E-01	--	--	5.1E-02	2.5E-01	--	--	**5.1E-02**	**2.5E-01**
Aldrin [C]	0	3.0E+00	--	4.9E-04	5.0E-04	3.2E+03	--	4.9E-04	5.0E-04	7.5E-01	--	4.9E-05	5.0E-05	3.1E+03	--	4.9E-05	5.0E-05	**3.1E+03**	--	**4.9E-05**	**5.0E-05**
Ammonia-N (mg/l) (Yearly)	0	6.95E+00	9.44E-01	--	--	7.34E+03	5.26E+03	--	--	1.74E+00	2.36E-01	--	--	7.14E+03	1.31E+03	--	--	**7.14E+03**	**1.31E+03**	--	--
Ammonia-N (mg/l) (High Flow)	0	6.95E+00	2.10E+00	--	--	7.15E+06	4.98E+05	--	--	1.74E+00	5.24E-01	--	--	1.79E+06	1.25E+05	--	--	**1.79E+06**	**1.25E+05**	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	1.7E+09	8.1E+09	--	--	8.3E+02	4.0E+03	--	--	1.7E+08	8.1E+08	--	--	**1.7E+08**	**8.1E+08**
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	1.1E+06	1.3E+08	--	--	5.6E-01	6.4E+01	--	--	1.1E+05	1.3E+07	--	--	**1.1E+05**	**1.3E+07**
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.6E+05	7.1E+05	2.0E+06	--	8.5E+01	3.8E+01	1.0E+00	--	3.5E+05	1.8E+05	2.0E+05	--	**3.5E+05**	**1.8E+05**	**2.0E+05**	--
Barium	0	--	--	2.0E+03	--	--	--	4.1E+08	--	--	--	2.0E+02	--	--	--	4.1E+07	--	--	--	**4.1E+07**	--
Benzene [C]	0	--	--	2.2E+01	5.1E+02	--	--	2.2E+01	5.1E+02	--	--	2.2E+00	5.1E+01	--	--	2.2E+00	5.1E+01	--	--	**2.2E+00**	**5.1E+01**
Benzidine[C]	0	--	--	8.6E-04	2.0E-03	--	--	8.6E-04	2.0E-03	--	--	8.6E-05	2.0E-04	--	--	8.6E-05	2.0E-04	--	--	**8.6E-05**	**2.0E-04**
Benzo (a) anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	**3.8E-03**	**1.8E-02**
Benzo (b) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	**3.8E-03**	**1.8E-02**
Benzo (k) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	**3.8E-03**	**1.8E-02**
Benzo (a) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	**3.8E-03**	**1.8E-02**
Bis2-Chloroethyl Ether [C]	0	--	--	3.0E-01	5.3E+00	--	--	3.0E-01	5.3E+00	--	--	3.0E-02	5.3E-01	--	--	3.0E-02	5.3E-01	--	--	**3.0E-02**	**5.3E-01**
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	2.8E+08	1.3E+10	--	--	1.4E+02	6.5E+03	--	--	2.8E+07	1.3E+09	--	--	**2.8E+07**	**1.3E+09**
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	1.2E+01	2.2E+01	--	--	1.2E+01	2.2E+01	--	--	1.2E+00	2.2E+00	--	--	1.2E+00	2.2E+00	--	--	**1.2E+00**	**2.2E+00**
Bromoform [C]	0	--	--	4.3E+01	1.4E+03	--	--	4.3E+01	1.4E+03	--	--	4.3E+00	1.4E+02	--	--	4.3E+00	1.4E+02	--	--	**4.3E+00**	**1.4E+02**
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	3.1E+08	3.9E+08	--	--	1.5E+02	1.9E+02	--	--	3.1E+07	3.9E+07	--	--	**3.1E+07**	**3.9E+07**
Cadmium	0	5.6E+00	1.5E+00	5.0E+00	--	5.9E+03	6.8E+03	1.0E+06	--	1.4E+00	3.6E-01	5.0E-01	--	5.7E+03	1.7E+03	1.0E+05	--	**5.7E+03**	**1.7E+03**	**1.0E+05**	--
Carbon Tetrachloride [C]	0	--	--	2.3E+00	1.6E+01	--	--	2.3E+00	1.6E+01	--	--	2.3E-01	1.6E+00	--	--	2.3E-01	1.6E+00	--	--	**2.3E-01**	**1.6E+00**
Chlordane [C]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.5E+03	2.0E+01	8.0E-03	8.1E-03	6.0E-01	1.1E-03	8.0E-04	8.1E-04	2.5E+03	5.1E+00	8.0E-04	8.1E-04	**2.5E+03**	**5.1E+00**	**8.0E-04**	**8.1E-04**
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	9.1E+08	1.1E+09	5.1E+10	--	2.2E+05	5.8E+04	2.5E+04	--	8.8E+08	2.7E+08	5.1E+09	--	**8.8E+08**	**2.7E+08**	**5.1E+09**	--
TRC	0	1.9E+01	1.1E+01	--	--	2.0E+04	5.2E+04	--	--	4.8E+00	2.8E+00	--	--	2.0E+04	1.3E+04	--	--	**2.0E+04**	**1.3E+04**	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	2.6E+07	3.3E+08	--	--	1.3E+01	1.6E+02	--	--	2.6E+06	3.3E+07	--	--	**2.6E+06**	**3.3E+07**

Attachment 6

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	4.0E+00	1.3E+02	--	--	4.0E+00	1.3E+02	--	--	4.0E-01	1.3E+01	--	--	4.0E-01	1.3E+01	--	--	**4.0E-01**	**1.3E+01**
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	6.9E+07	2.2E+09	--	--	3.4E+01	1.1E+03	--	--	6.9E+06	2.2E+08	--	--	**6.9E+06**	**2.2E+08**
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	2.0E+08	3.3E+08	--	--	1.0E+02	1.6E+02	--	--	2.0E+07	3.3E+07	--	--	**2.0E+07**	**3.3E+07**
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	1.6E+07	3.1E+07	--	--	8.1E+00	1.5E+01	--	--	1.6E+06	3.1E+06	--	--	**1.6E+06**	**3.1E+06**
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	8.8E+01	1.9E+02	--	--	2.1E-02	1.0E-02	--	--	8.5E+01	4.8E+01	--	--	**8.5E+01**	**4.8E+01**	--	--
Chromium III	0	7.4E+02	9.6E+01	--	--	7.8E+05	4.5E+05	--	--	1.8E+02	2.4E+01	--	--	7.6E+05	1.1E+05	--	--	**7.6E+05**	**1.1E+05**	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.7E+04	5.2E+04	--	--	4.0E+00	2.8E+00	--	--	1.6E+04	1.3E+04	--	--	**1.6E+04**	**1.3E+04**	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	2.0E+07	--	--	--	1.0E+01	--	--	--	2.0E+06	--	--	--	**2.0E+06**	--
Chrysene [C]	0	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	3.8E-04	1.8E-03	--	--	3.8E-04	1.8E-03	--	--	**3.8E-04**	**1.8E-03**
Copper	0	1.8E+01	1.2E+01	1.3E+03	--	1.9E+04	5.5E+04	2.6E+08	--	4.5E+00	2.9E+00	1.3E+02	--	1.9E+04	1.4E+04	2.6E+07	--	**1.9E+04**	**1.4E+04**	**2.6E+07**	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.3E+04	2.5E+04	2.8E+07	3.3E+09	5.5E+00	1.3E+00	1.4E+01	1.6E+03	2.3E+04	6.1E+03	2.8E+06	3.3E+08	**2.3E+04**	**6.1E+03**	**2.8E+06**	**3.3E+08**
DDD [C]	0	--	--	3.1E-03	3.1E-03	--	--	3.1E-03	3.1E-03	--	--	3.1E-04	3.1E-04	--	--	3.1E-04	3.1E-04	--	--	**3.1E-04**	**3.1E-04**
DDE [C]	0	--	--	2.2E-03	2.2E-03	--	--	2.2E-03	2.2E-03	--	--	2.2E-04	2.2E-04	--	--	2.2E-04	2.2E-04	--	--	**2.2E-04**	**2.2E-04**
DDT [C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.2E+03	4.7E+00	2.2E-03	2.2E-03	2.8E-01	2.5E-04	2.2E-04	2.2E-04	1.1E+03	1.2E+00	2.2E-04	2.2E-04	**1.1E+03**	**1.2E+00**	**2.2E-04**	**2.2E-04**
Demeton	0	--	1.0E-01	--	--	--	4.7E+02	--	--	--	2.5E-02	--	--	--	1.2E+02	--	--	--	**1.2E+02**	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	1.8E+02	8.0E+02	--	--	4.3E-02	4.3E-02	--	--	1.7E+02	2.0E+02	--	--	**1.7E+02**	**2.0E+02**	--	--
Dibenz(a,h)anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	**3.8E-03**	**1.8E-02**
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	8.5E+07	2.6E+08	--	--	4.2E+01	1.3E+02	--	--	8.5E+06	2.6E+07	--	--	**8.5E+06**	**2.6E+07**
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	6.5E+07	2.0E+08	--	--	3.2E+01	9.6E+01	--	--	6.5E+06	2.0E+07	--	--	**6.5E+06**	**2.0E+07**
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	1.3E+07	3.9E+07	--	--	6.3E+00	1.9E+01	--	--	1.3E+06	3.9E+06	--	--	**1.3E+06**	**3.9E+06**
3,3-Dichlorobenzidine[C]	0	--	--	2.1E-01	2.8E-01	--	--	2.1E-01	2.8E-01	--	--	2.1E-02	2.8E-02	--	--	2.1E-02	2.8E-02	--	--	**2.1E-02**	**2.8E-02**
Dichlorobromomethane [C]	0	--	--	5.5E+00	1.7E+02	--	--	5.5E+00	1.7E+02	--	--	5.5E-01	1.7E+01	--	--	5.5E-01	1.7E+01	--	--	**5.5E-01**	**1.7E+01**
1,2-Dichloroethane [C]	0	--	--	3.8E+00	3.7E+02	--	--	3.8E+00	3.7E+02	--	--	3.8E-01	3.7E+01	--	--	3.8E-01	3.7E+01	--	--	**3.8E-01**	**3.7E+01**
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	6.7E+07	1.4E+09	--	--	3.3E+01	7.1E+02	--	--	6.7E+06	1.4E+08	--	--	**6.7E+06**	**1.4E+08**
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	2.8E+07	2.0E+09	--	--	1.4E+01	1.0E+03	--	--	2.8E+06	2.0E+08	--	--	**2.8E+06**	**2.0E+08**
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	1.6E+07	5.9E+07	--	--	7.7E+00	2.9E+01	--	--	1.6E+06	5.9E+06	--	--	**1.6E+06**	**5.9E+06**
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	2.0E+07	--	--	--	1.0E+01	--	--	--	2.0E+06	--	--	--	**2.0E+06**	--
1,2-Dichloropropane[C]	0	--	--	5.0E+00	1.5E+02	--	--	5.0E+00	1.5E+02	--	--	5.0E-01	1.5E+01	--	--	5.0E-01	1.5E+01	--	--	**5.0E-01**	**1.5E+01**
1,3-Dichloropropene [C]	0	--	--	3.4E+00	2.1E+02	--	--	3.4E+00	2.1E+02	--	--	3.4E-01	2.1E+01	--	--	3.4E-01	2.1E+01	--	--	**3.4E-01**	**2.1E+01**
Dieldrin [C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.5E+02	2.6E+02	5.2E-04	5.4E-04	6.0E-02	1.4E-02	5.2E-05	5.4E-05	2.5E+02	6.6E+01	5.2E-05	5.4E-05	**2.5E+02**	**6.6E+01**	**5.2E-05**	**5.4E-05**
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	3.5E+09	8.9E+09	--	--	1.7E+03	4.4E+03	--	--	3.5E+08	8.9E+08	--	--	**3.5E+08**	**8.9E+08**
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	7.7E+07	1.7E+08	--	--	3.8E+01	8.5E+01	--	--	7.7E+06	1.7E+07	--	--	**7.7E+06**	**1.7E+07**
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	5.5E+10	2.2E+11	--	--	2.7E+04	1.1E+05	--	--	5.5E+09	2.2E+10	--	--	**5.5E+09**	**2.2E+10**
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	4.1E+08	9.2E+08	--	--	2.0E+02	4.5E+02	--	--	4.1E+07	9.2E+07	--	--	**4.1E+07**	**9.2E+07**
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	1.4E+07	1.1E+09	--	--	6.9E+00	5.3E+02	--	--	1.4E+06	1.1E+08	--	--	**1.4E+06**	**1.1E+08**
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	2.6E+06	5.7E+07	--	--	1.3E+00	2.8E+01	--	--	2.6E+05	5.7E+06	--	--	**2.6E+05**	**5.7E+06**
2,4-Dinitrotoluene [C]	0	--	--	1.1E+00	3.4E+01	--	--	1.1E+00	3.4E+01	--	--	1.1E-01	3.4E+00	--	--	1.1E-01	3.4E+00	--	--	**1.1E-01**	**3.4E+00**
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	1.0E-02	1.0E-02	--	--	5.0E-09	5.1E-09	--	--	1.0E-03	1.0E-03	--	--	**1.0E-03**	**1.0E-03**
1,2-Diphenylhydrazine[C]	0	--	--	3.6E-01	2.0E+00	--	--	3.6E-01	2.0E+00	--	--	3.6E-02	2.0E-01	--	--	3.6E-02	2.0E-01	--	--	**3.6E-02**	**2.0E-01**
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.3E+02	2.6E+02	1.3E+07	1.8E+07	5.5E-02	1.4E-02	6.2E+00	8.9E+00	2.3E+02	6.6E+01	1.3E+06	1.8E+06	**2.3E+02**	**6.6E+01**	**1.3E+06**	**1.8E+06**
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.3E+02	2.6E+02	1.3E+07	1.8E+07	5.5E-02	1.4E-02	6.2E+00	8.9E+00	2.3E+02	6.6E+01	1.3E+06	1.8E+06	**2.3E+02**	**6.6E+01**	**1.3E+06**	**1.8E+06**
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.3E+02	2.6E+02	--	--	5.5E-02	1.4E-02	--	--	2.3E+02	6.6E+01	--	--	**2.3E+02**	**6.6E+01**	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	1.3E+07	1.8E+07	--	--	6.2E+00	8.9E+00	--	--	1.3E+06	1.8E+06	--	--	**1.3E+06**	**1.8E+06**
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	9.1E+01	1.7E+02	1.2E+04	1.2E+04	2.2E-02	9.0E-03	5.9E-03	6.0E-03	8.8E+01	4.2E+01	1.2E+03	1.2E+03	**8.8E+01**	**4.2E+01**	**1.2E+03**	**1.2E+03**
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	5.9E+04	6.1E+04	--	--	2.9E-02	3.0E-02	--	--	5.9E+03	6.1E+03	--	--	**5.9E+03**	**6.1E+03**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	1.1E+08	4.3E+08	--	--	5.3E+01	2.1E+02	--	--	1.1E+07	4.3E+07	--	--	**1.1E+07**	**4.3E+07**
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	2.6E+07	2.8E+07	--	--	1.3E+01	1.4E+01	--	--	2.6E+06	2.8E+06	--	--	**2.6E+06**	**2.8E+06**
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	2.2E+08	1.1E+09	--	--	1.1E+02	5.3E+02	--	--	2.2E+07	1.1E+08	--	--	**2.2E+07**	**1.1E+08**
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.0E+08	--	--	--	5.0E+01	--	--	--	1.0E+07	--	--	--	**1.0E+07**	--
Guthion	0	--	1.0E-02	--	--	--	4.7E+01	--	--	--	2.5E-03	--	--	--	1.2E+01	--	--	--	**1.2E+01**	--	--
Heptachlor [C]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	5.5E+02	1.8E+01	7.9E-04	7.9E-04	1.3E-01	9.5E-04	7.9E-05	7.9E-05	5.3E+02	4.5E+00	7.9E-05	7.9E-05	**5.3E+02**	**4.5E+00**	**7.9E-05**	**7.9E-05**
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	5.5E+02	1.8E+01	3.9E-04	3.9E-04	1.3E-01	9.5E-04	3.9E-05	3.9E-05	5.3E+02	4.5E+00	3.9E-05	3.9E-05	**5.3E+02**	**4.5E+00**	**3.9E-05**	**3.9E-05**
Hexachlorobenzene [C]	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-03	2.9E-03	--	--	2.8E-04	2.9E-04	--	--	2.8E-04	2.9E-04	--	--	**2.8E-04**	**2.9E-04**
Hexachlorobutadiene [C]	0	--	--	4.4E+00	1.8E+02	--	--	4.4E+00	1.8E+02	--	--	4.4E-01	1.8E+01	--	--	4.4E-01	1.8E+01	--	--	**4.4E-01**	**1.8E+01**
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	2.6E-02	4.9E-02	--	--	2.6E-02	4.9E-02	--	--	2.6E-03	4.9E-03	--	--	2.6E-03	4.9E-03	--	--	**2.6E-03**	**4.9E-03**
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-02	1.7E-01	--	--	9.1E-03	1.7E-02	--	--	9.1E-03	1.7E-02	--	--	**9.1E-03**	**1.7E-02**
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	1.0E+03	--	9.8E-01	1.8E+00	2.4E-01	--	9.8E-02	1.8E-01	9.8E+02	--	9.8E-02	1.8E-01	**9.8E+02**	--	**9.8E-02**	**1.8E-01**
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	8.1E+06	2.2E+08	--	--	4.0E+00	1.1E+02	--	--	8.1E+05	2.2E+07	--	--	**8.1E+05**	**2.2E+07**
Hexachloroethane [C]	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+01	3.3E+01	--	--	1.4E+00	3.3E+00	--	--	1.4E+00	3.3E+00	--	--	**1.4E+00**	**3.3E+00**
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	9.4E+03	--	--	--	5.0E-01	--	--	--	2.4E+03	--	--	--	**2.4E+03**	--	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	**3.8E-03**	**1.8E-02**
Iron	0	--	--	3.0E+02	--	--	--	6.1E+07	--	--	--	3.0E+01	--	--	--	6.1E+06	--	--	--	**6.1E+06**	--
Isophorone [C]	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+02	9.6E+03	--	--	3.5E+01	9.6E+02	--	--	3.5E+01	9.6E+02	--	--	**3.5E+01**	**9.6E+02**
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	**0.0E+00**	--	--
Lead	0	1.8E+02	2.0E+01	1.5E+01	--	1.9E+05	9.5E+04	3.1E+06	--	4.4E+01	5.0E+00	1.5E+00	--	1.8E+05	2.4E+04	3.1E+05	--	**1.8E+05**	**2.4E+04**	**3.1E+05**	--
Malathion	0	--	1.0E-01	--	--	--	4.7E+02	--	--	--	2.5E-02	--	--	--	1.2E+02	--	--	--	**1.2E+02**	--	--
Manganese	0	--	--	5.0E+01	--	--	--	1.0E+07	--	--	--	5.0E+00	--	--	--	1.0E+06	--	--	--	**1.0E+06**	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.5E+03	3.6E+03	--	--	3.5E-01	1.9E-01	--	--	1.4E+03	9.1E+02	--	--	**1.4E+03**	**9.1E+02**	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	9.6E+06	3.1E+08	--	--	4.7E+00	1.5E+02	--	--	9.6E+05	3.1E+07	--	--	**9.6E+05**	**3.1E+07**
Methylene Chloride [C]	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+01	5.9E+03	--	--	4.6E+00	5.9E+02	--	--	4.6E+00	5.9E+02	--	--	**4.6E+00**	**5.9E+02**
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	1.4E+02	2.0E+07	--	--	7.5E-03	1.0E+01	--	--	3.5E+01	2.0E+06	--	--	**3.5E+01**	**2.0E+06**	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	**0.0E+00**	--	--
Nickel	0	2.4E+02	2.6E+01	6.1E+02	4.6E+03	2.5E+05	1.2E+05	1.2E+08	9.4E+08	5.9E+01	6.6E+00	6.1E+01	4.6E+02	2.4E+05	3.1E+04	1.2E+07	9.4E+07	**2.4E+05**	**3.1E+04**	**1.2E+07**	**9.4E+07**
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	2.0E+09	--	--	--	1.0E+03	--	--	--	2.0E+08	--	--	--	**2.0E+08**	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	3.5E+06	1.4E+08	--	--	1.7E+00	6.9E+01	--	--	3.5E+05	1.4E+07	--	--	**3.5E+05**	**1.4E+07**
N-Nitrosodimethylamine [C]	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-03	3.0E+01	--	--	6.9E-04	3.0E+00	--	--	6.9E-04	3.0E+00	--	--	**6.9E-04**	**3.0E+00**
N-Nitrosodiphenylamine [C]	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+01	6.0E+01	--	--	3.3E+00	6.0E+00	--	--	3.3E+00	6.0E+00	--	--	**3.3E+00**	**6.0E+00**
N-Nitrosodi-n-propylamine [C]	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-02	5.1E+00	--	--	5.0E-03	5.1E-01	--	--	5.0E-03	5.1E-01	--	--	**5.0E-03**	**5.1E-01**
Nonylphenol	0	2.8E+01	6.6E+00	--	--	3.0E+04	3.1E+04	--	--	7.0E+00	1.7E+00	--	--	2.9E+04	7.8E+03	--	--	**2.9E+04**	**7.8E+03**	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	6.9E+01	6.1E+01	--	--	1.6E-02	3.3E-03	--	--	6.7E+01	1.5E+01	--	--	**6.7E+01**	**1.5E+01**	--	--
PCB Total [C]	0	--	1.4E-02	6.4E-04	6.4E-04	--	6.6E+01	6.4E-04	6.4E-04	--	3.5E-03	6.4E-05	6.4E-05	--	1.7E+01	6.4E-05	6.4E-05	--	**1.7E+01**	**6.4E-05**	**6.4E-05**
Pentachlorophenol [C]	0	1.6E+01	1.4E+01	2.7E+00	3.0E+01	1.9E+04	6.4E+04	2.7E+00	3.0E+01	4.4E+00	3.4E+00	2.7E-01	3.0E+00	1.6E+04	1.6E+04	2.7E-01	3.0E+00	**1.6E+04**	**1.6E+04**	**2.7E-01**	**3.0E+00**
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	2.0E+09	1.7E+11	--	--	1.0E+03	8.6E+04	--	--	2.0E+08	1.7E+10	--	--	**2.0E+08**	**1.7E+10**
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	1.7E+08	8.1E+08	--	--	8.3E+01	4.0E+02	--	--	1.7E+07	8.1E+07	--	--	**1.7E+07**	**8.1E+07**
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	3.1E+06	--	--	--	1.5E+00	--	--	--	3.1E+05	--	--	--	**3.1E+05**	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	8.1E+05	8.1E+05	--	--	4.0E-01	4.0E-01	--	--	8.1E+04	8.1E+04	--	--	**8.1E+04**	**8.1E+04**
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	1.0E+06	--	--	--	5.0E-01	--	--	--	1.0E+05	--	--	--	**1.0E+05**	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	6.1E+06	--	--	--	3.0E+00	--	--	--	6.1E+05	--	--	--	**6.1E+05**	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.1E+04	2.4E+04	3.5E+07	8.5E+08	5.0E+00	1.3E+00	1.7E+01	4.2E+02	2.1E+04	5.9E+03	3.5E+06	8.5E+07	**2.1E+04**	**5.9E+03**	**3.5E+06**	**8.5E+07**
Silver	0	5.9E+00	--	--	--	6.3E+03	--	--	--	1.5E+00	--	--	--	6.1E+03	--	--	--	**6.1E+03**	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	5.1E+10	--	--	--	2.5E+04	--	--	--	5.1E+09	--	--	--	**5.1E+09**	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	4.0E+01	--	--	1.7E+00	4.0E+01	--	--	1.7E-01	4.0E+00	--	--	1.7E-01	4.0E+00	--	--	**1.7E-01**	**4.0E+00**
Tetrachloroethylene[C]	0	--	--	6.9E+00	3.3E+01	--	--	6.9E+00	3.3E+01	--	--	6.9E-01	3.3E+00	--	--	6.9E-01	3.3E+00	--	--	**6.9E-01**	**3.3E+00**
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	4.9E+04	9.6E+04	--	--	2.4E-02	4.7E-02	--	--	4.9E+03	9.6E+03	--	--	**4.9E+03**	**9.6E+03**
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	1.0E+08	1.2E+09	--	--	5.1E+01	6.0E+02	--	--	1.0E+07	1.2E+08	--	--	**1.0E+07**	**1.2E+08**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.0E+11	--	--	--	5.0E+04	--	--	--	1.0E+10	--	--	--	**1.0E+10**	--
Toxaphene [C]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	7.7E+02	9.4E-01	2.8E-03	2.8E-03	1.8E-01	5.0E-05	2.8E-04	2.8E-04	7.5E+02	2.4E-01	2.8E-04	2.8E-04	**7.5E+02**	**2.4E-01**	**2.8E-04**	**2.8E-04**
Tributyltin	0	4.6E-01	7.2E-02	--	--	4.9E+02	3.4E+02	--	--	1.2E-01	1.8E-02	--	--	4.7E+02	8.5E+01	--	--	**4.7E+02**	**8.5E+01**	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	7.1E+06	1.4E+07	--	--	3.5E+00	7.0E+00	--	--	7.1E+05	1.4E+06	--	--	**7.1E+05**	**1.4E+06**
1,1,2-Trichloroethane[C]	0	--	--	5.9E+00	1.6E+02	--	--	5.9E+00	1.6E+02	--	--	5.9E-01	1.6E+01	--	--	5.9E-01	1.6E+01	--	--	**5.9E-01**	**1.6E+01**
Trichloroethylene [C]	0	--	--	2.5E+01	3.0E+02	--	--	2.5E+01	3.0E+02	--	--	2.5E+00	3.0E+01	--	--	2.5E+00	3.0E+01	--	--	**2.5E+00**	**3.0E+01**
2,4,6-Trichlorophenol [C]	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+01	2.4E+01	--	--	1.4E+00	2.4E+00	--	--	1.4E+00	2.4E+00	--	--	**1.4E+00**	**2.4E+00**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.0E+07	--	--	--	5.0E+00	--	--	--	1.0E+06	--	--	--	**1.0E+06**	--
Vinyl Chloride[C]	0	--	--	2.5E-01	2.4E+01	--	--	2.5E-01	2.4E+01	--	--	2.5E-02	2.4E+00	--	--	2.5E-02	2.4E+00	--	--	**2.5E-02**	**2.4E+00**
Zinc	0	1.5E+02	1.5E+02	7.4E+03	2.6E+04	1.6E+05	7.3E+05	1.5E+09	5.3E+09	3.8E+01	3.9E+01	7.4E+02	2.6E+03	1.6E+05	1.8E+05	1.5E+08	5.3E+08	**1.6E+05**	**1.8E+05**	**1.5E+08**	**5.3E+08**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	1.1E+05
Arsenic	1.1E+05
Barium	4.1E+07
Cadmium	1.0E+03
Chromium III	6.8E+04
Chromium VI	6.6E+03
Copper	7.4E+03
Iron	6.1E+06
Lead	1.4E+04
Manganese	1.0E+06
Mercury	5.4E+02
Nickel	1.9E+04
Selenium	3.5E+03
Silver	2.4E+03
Zinc	6.3E+04

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Monthly Ambient Monitoring Data
Station POT1830 (Sheperdstown)
January 2012 - June 2013

DATE	Temperature		pH
	°F	° C	S.U.
January	36.5	2.5	8
February	43	6.1	7.9
March	43.2	6.2	7.8
April	57.9	14.4	8
May	61	16.1	7.7
June	74.5	23.6	7.5
July	87.1	30.6	8
August	81.4	27.4	8.2
September	79.9	26.6	7.9
October	65.7	18.7	7.9
November	48	8.9	7.7
December	46.2	7.9	7.9
January	37.6	3.1	8.1
February	37	2.8	7.8
March	40.3	4.6	7.9
April	47.1	8.4	8.1
May	60.3	15.7	7.9
June	72.9	22.7	7.8

90th percentile	**26.9**	**8.1**
10th percentile		**7.7**

Wet Season °C
2.5
6.1
6.2
8.9
7.9
3.1
2.8
4.6

90th percentile (Nov - Mar) **8.2**

Chesapeake Bay Coastal Bays Rivers & Streams Watersheds

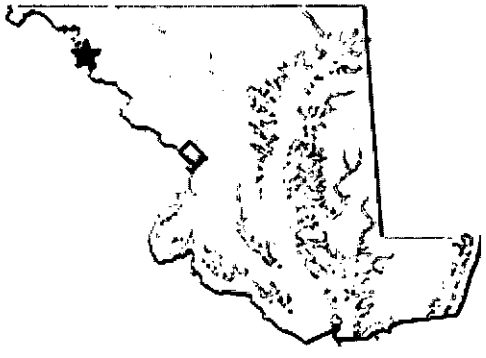
MARYLAND DEPARTMENT OF NATURAL RESOURCES

Fixed Station Monthly Monitoring

More Info:

Home
Monthly Monitoring Data
Eyes on the Bay
Continuous Monitoring
Water Quality Mapping

Upper Potomac River - Shepherdstown (POT1830)
CORE/Potomac - (POT1830)



Location:
Potomac River at the Rte. 34 Bridge in Shepherdstown

Coordinates (NAD83):

Latitude:	39.4351°
Longitude:	-77.8028°
Latitude:	39.4351°
Longitude:	-77.8027°

Description:
This station is a shallow, non-tidal, fresh water site where water clarity and salinity are not measured.WM21;Potomac River at gage station below bridge on MD Route 34; Characterizes free-flowing freshwater

Current Parameter: pH

Choose Other Parameters:

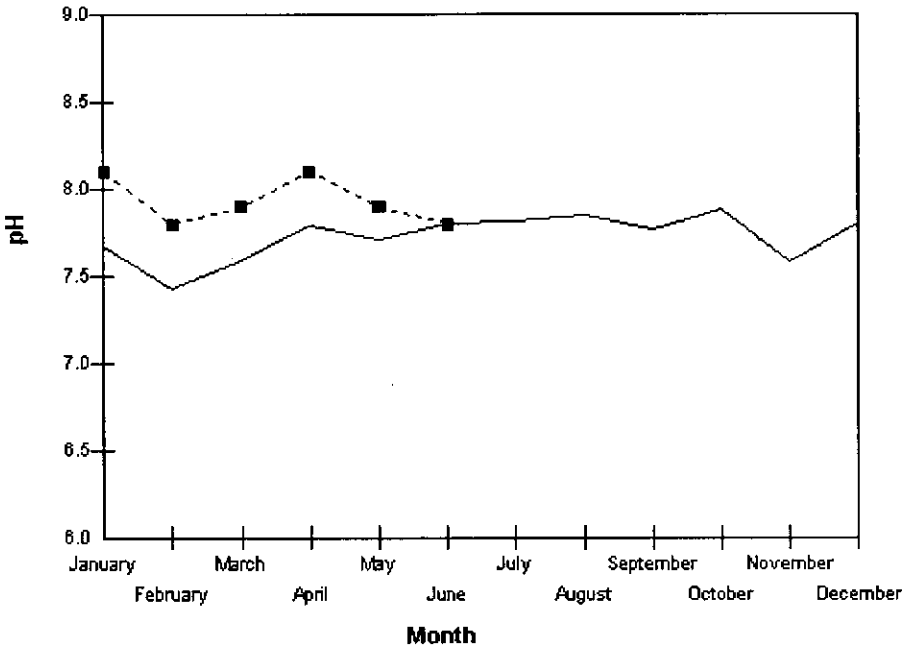
Return to the Station Map

Dissolved Oxygen	Water Temperature	Salinity	pH	Water Clarity

The yellow shaded area represents the range of monthly mean values that have occurred from 1986 to 2012. The blue line shows the monthly mean values for each month over that same time period. The red line shows what the current years conditions are and how they compare to the range and the average values we've seen.

***Note that the Mean pH is now correctly calculated by converting pH values to the representative H+ ion concentrations, averaging those concentrations, and converting back to pH scale. Prior to 2012, we were displaying averages of pH readings, which was statistically incorrect since pH readings are on a logarithmic scale.**

2013 Surface Water pH
Upper Potomac River / Shepherdstown (POT1830) CORE/Potomac / (POT1830)



Surface Water pH Upper Potomac River / Shepherdstown (POT1830) CORE/Potomac / (POT1830)					
Month	**Minimum**	**Mean**	**Maximum**	**2012**	**2013**
January	7.00	7.68	8.80	8.00	8.10
February	6.20	7.43	8.70	7.90	7.80
March	6.80	7.59	8.30	7.80	7.90
April	7.10	7.79	8.20	8.00	8.10
May	7.30	7.71	8.70	7.70	7.90
June	7.50	7.80	8.60	7.50	7.80
July	7.10	7.81	8.50	8.00	
August	7.30	7.85	8.50	8.20	
September	7.30	7.77	8.20	7.90	
October	7.60	7.88	8.50	7.90	
November	6.50	7.58	8.70	7.70	
December	7.20	7.80	8.60	7.90	

NOTE: Results displayed are provisional and have not undergone full Quality Assurance procedures. Although Maryland DNR believes the data presented here are correct, we cannot guarantee their accuracy at this time.

Choose Other Parameters:

Dissolved Oxygen	Water Temperature	Salinity	pH	Water Clarity

Return to the Station Map

Additional water quality data, including nutrient data, is currently available through the

Chesapeake Bay Program Data Hub.

Contact **Mark Trice** of MD DNR's Resource Assessment Service at (410) 260-8630 or by email at **mtrice@dnr.state.md.us.**

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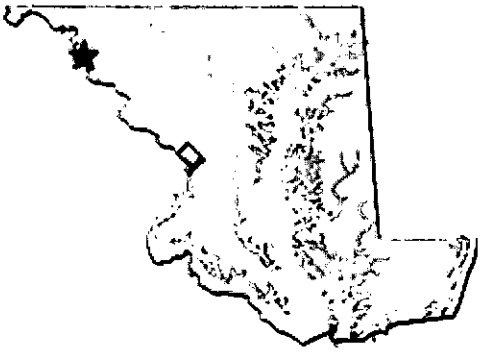
Upper Potomac River - Shepherdstown (POT1830) CORE/Potomac - (POT1830)



Location:
Potomac River at the Rte. 34 Bridge in Shepherdstown

Coordinates (NAD83):

Latitude:	39.4351°
Longitude:	-77.8028°
Latitude:	39.4351°
Longitude:	-77.8027°

Description:
This station is a shallow, non-tidal, fresh water site where water clarity and salinity are not measured.WM21;Potomac River at gage station below bridge on MD Route 34; Characterizes free-flowing freshwater

Current Parameter: Water Temperature

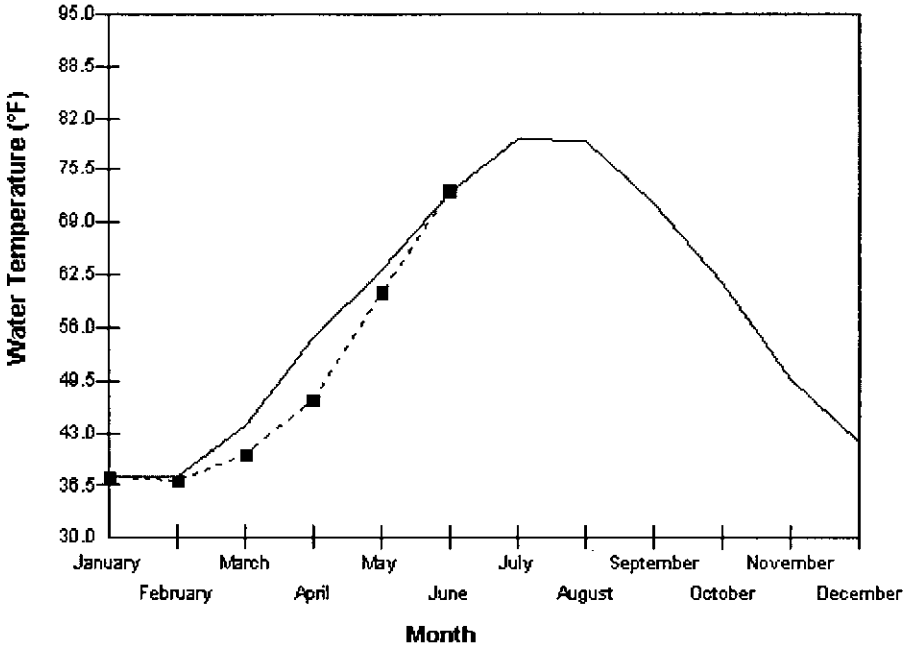
Choose Other Parameters: Return to the Station Map

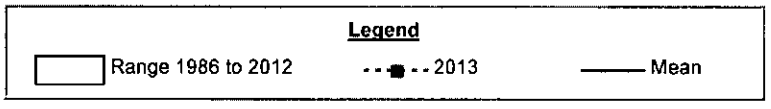
Dissolved Oxygen	Water Temperature	Salinity	pH	Water Clarity

The yellow shaded area represents the range of monthly mean values that have occurred from 1986 to 2012. The blue line shows the monthly mean values for each month over that same time period. The red line shows what the current years conditions are and how they compare to the range and the average values we've seen.

To convert temperature to Fahrenheit, use the conversion tool below.

2013 Surface Water Temperature
Upper Potomac River / Shepherdstown (POT1830) CORE/Potomac / (POT1830)





Surface Water Temperature (°F) Upper Potomac River / Shepherdstown (POT1830) CORE/Potomac / (POT1830)					
Month	**Minimum**	**Mean**	**Maximum**	**2012**	**2013**
January	31.82	37.59	44.06	36.50	37.58
February	32.90	37.74	46.94	42.98	37.04
March	37.22	43.86	51.80	43.16	40.28
April	46.40	54.80	64.94	57.92	47.12
May	54.86	63.08	73.04	60.98	60.26
June	62.60	72.62	81.50	74.48	72.86
July	71.42	79.44	87.08	87.08	
August	71.06	79.01	85.28	84.38	
September	56.66	71.41	79.88	79.88	
October	54.68	61.62	74.66	65.66	
November	40.28	49.79	59.00	48.02	
December	34.16	41.93	51.26	46.22	

NOTE: Results displayed are provisional and have not undergone full Quality Assurance procedures. Although Maryland DNR believes the data presented here are correct, we cannot guarantee their accuracy at this time.

Temperature Conversion

○ Fahrenheit = ?
○ Celsius

Enter a reading on the left side and select the units of the original value. The converted temperature will be displayed on the right.

Choose Other Parameters:

Dissolved Oxygen	Water Temperature	Salinity	pH	Water Clarity

Return to the Station Map

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DMR QA/QC

Permit #:VA0092380

Facility:Elysian Heights STP

Rec'd	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	Units	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max	Units
12-Jan-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.24	NL	0.20	NL	MG/L
10-Feb-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.18	NL	0.50	NL	MG/L
11-Mar-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.45	NL	1.10	NL	MG/L
13-Apr-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.48	NL	0.60	NL	MG/L
11-May-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.48	NL	0.50	NL	MG/L
11-Jun-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	1.07	NL	4.00	NL	MG/L
13-Jul-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	MG/L
11-Aug-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.30	NL	0.45	NL	MG/L
11-Sep-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.21	NL	0.40	NL	MG/L
13-Oct-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.04	NL	0.20	NL	MG/L
12-Nov-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.24	NL	0.69	NL	MG/L
11-Dec-2009	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.18	NL	0.40	NL	MG/L
11-Jan-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.83	NL	3.90	NL	MG/L
12-Feb-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.68	NL	2.20	NL	MG/L
11-Mar-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	1.15	NL	2.10	NL	MG/L
12-Apr-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.38	NL	1.00	NL	MG/L
12-May-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.24	NL	0.36	NL	MG/L
10-Jun-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.43	NL	0.76	NL	MG/L
12-Jul-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.45	NL	0.59	NL	MG/L
10-Aug-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.21	NL	0.31	NL	MG/L
13-Sep-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.31	NL	0.34	NL	MG/L
12-Oct-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.26	NL	0.42	NL	MG/L
12-Nov-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.10	NL	0.41	NL	MG/L
13-Dec-2010	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.70	NL	2.80	NL	MG/L
11-Jan-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	MG/L
10-Feb-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	MG/L
11-Mar-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	MG/L
11-Apr-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	MG/L
11-May-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.11	NL	0.44	NL	MG/L
13-Jun-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.22	NL	0.45	NL	MG/L
11-Jul-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.62	NL	<QL	NL	MG/L
12-Aug-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	<QL	NL	<QL	NL	MG/L
12-Sep-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.18	NL	0.28	NL	MG/L
06-Oct-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	2.75	NL	<QL	NL	MG/L
14-Nov-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.25	NL	0.73	NL	MG/L
13-Dec-2011	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.63	NL	<QL	NL	MG/L
11-Jan-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.38	NL	0.53	NL	MG/L

Attachment 8

13-Feb-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.46	NL	0.85	NL	MG/L
09-Mar-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.38	NL	0.33	NL	MG/L
10-Apr-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.19	NL	0.29	NL	MG/L
08-May-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.29	NL	0.41	NL	MG/L
08-Jun-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.25	NL	0.42	NL	MG/L
09-Jul-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.3	NL	0.6	NL	MG/L
10-Aug-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.68	NL	1.50	NL	MG/L
10-Sep-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.24	NL	0.3	NL	MG/L
10-Oct-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.43	NL	0.90	NL	MG/L
09-Nov-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.3	NL	0.6	NL	MG/L
07-Dec-2012	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.20	NL	0.20	NL	MG/L
10-Jan-2013	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.2	NL	0.5	NL	MG/L
08-Feb-2013	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	1.26	NL	0.42	NL	MG/L
08-Mar-2013	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.5	NL	0.6	NL	MG/L
09-Apr-2013	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.69	NL	1.60	NL	MG/L
09-May-2013	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	0.56	NL	0.64	NL	MG/L
10-Jun-2013	AMMONIA, AS N	NULL	*********	NULL	*********	NULL	NULL	*********	X	NL	X	NL	MG/L
12-Jan-2009	BOD5	0.19	14	0.34	21	KG/D	NULL	*********	3.40	30	6.00	45	MG/L
10-Feb-2009	BOD5	0.21	14	0.57	21	KG/D	NULL	*********	2.50	30	5.00	45	MG/L
11-Mar-2009	BOD5	0.48	14	0.75	21	KG/D	NULL	*********	7.25	30	9.00	45	MG/L
13-Apr-2009	BOD5	0.31	14	0.61	21	KG/D	NULL	*********	5.0	30	9.0	45	MG/L
11-May-2009	BOD5	0.46	14	0.53	21	KG/D	NULL	*********	6.4	30	7.0	45	MG/L
11-Jun-2009	BOD5	0.73	14	1.26	21	KG/D	NULL	*********	11.85	30	19.60	45	MG/L
13-Jul-2009	BOD5	1.10	14	2.03	21	KG/D	NULL	*********	17.22	30	35.80	45	MG/L
11-Aug-2009	BOD5	0.75	14	0.98	21	KG/D	NULL	*********	13.62	30	21.50	45	MG/L
11-Sep-2009	BOD5	0.99	14	1.30	21	KG/D	NULL	*********	17.19	30	20.19	45	MG/L
13-Oct-2009	BOD5	0.64	14	0.98	21	KG/D	NULL	*********	10.38	30	15.30	45	MG/L
12-Nov-2009	BOD5	0.58	14	0.95	21	KG/D	NULL	*********	9.16	30	13.17	45	MG/L
11-Dec-2009	BOD5	0.36	14	0.41	21	KG/D	NULL	*********	6.53	30	7.50	45	MG/L
11-Jan-2010	BOD5	0.31	14	0.76	21	KG/D	NULL	*********	4.43	30	10.01	45	MG/L
12-Feb-2010	BOD5	0.94	14	1.73	21	KG/D	NULL	*********	13.08	30	20.82	45	MG/L
11-Mar-2010	BOD5	0.52	14	0.68	21	KG/D	NULL	*********	7.71	30	10.50	45	MG/L
12-Apr-2010	BOD5	0.6	14	0.8	21	KG/D	NULL	*********	7.0	30	9.7	45	MG/L
12-May-2010	BOD5	0.82	14	0.95	21	KG/D	NULL	*********	11.72	30	12.20	45	MG/L
10-Jun-2010	BOD5	1.30	14	1.40	21	KG/D	NULL	*********	17.34	30	19.50	45	MG/L
12-Jul-2010	BOD5	1.8	14	2.7	21	KG/D	NULL	*********	28.4	30	39.6	45	MG/L
10-Aug-2010	BOD5	0.77	14	0.90	21	KG/D	NULL	*********	10.6	30	14.9	45	MG/L
13-Sep-2010	BOD5	1.22	14	1.49	21	KG/D	NULL	*********	18.3	30	21.8	45	MG/L
12-Oct-2010	BOD5	1.29	14	1.34	21	KG/D	NULL	*********	19.7	30	23.6	45	MG/L
12-Nov-2010	BOD5	0.74	14	1.03	21	KG/D	NULL	*********	11.2	30	15.1	45	MG/L
13-Dec-2010	BOD5	1.18	14	1.16	21	KG/D	NULL	*********	15.5	30	17.0	45	MG/L
11-Jan-2011	BOD5	0.79	14	0.87	21	KG/D	NULL	*********	9.7	30	11.0	45	MG/L
10-Feb-2011	BOD5	0.65	14	1.14	21	KG/D	NULL	*********	8.5	30	13.7	45	MG/L

11-Mar-2011	BOD5	0.64	14	0.91	21	KG/D	NULL	**********	6.4	30	7.1	45	MG/L
11-Apr-2011	BOD5	0.78	14	0.97	21	KG/D	NULL	**********	8.7	30	10.7	45	MG/L
11-May-2011	BOD5	0.96	14	1.39	21	KG/D	NULL	**********	9.1	30	15.4	45	MG/L
13-Jun-2011	BOD5	0.85	14	1.10	21	KG/D	NULL	**********	8.5	30	13.2	45	MG/L
11-Jul-2011	BOD5	0.70	14	0.77	21	KG/D	NULL	**********	6.5	30	6.8	45	MG/L
12-Aug-2011	BOD5	0.96	14	1.17	21	KG/D	NULL	**********	12.5	30	15.5	45	MG/L
12-Sep-2011	BOD5	0.72	14	0.79	21	KG/D	NULL	**********	7.9	30	9.0	45	MG/L
06-Oct-2011	BOD5	1.07	14	1.05	21	KG/D	NULL	**********	8.9	30	9.6	45	MG/L
14-Nov-2011	BOD5	0.91	14	1.72	21	KG/D	NULL	**********	9.8	30	13.5	45	MG/L
13-Dec-2011	BOD5	1.32	14	3.13	21	KG/D	NULL	**********	11.1	30	25.8	45	MG/L
11-Jan-2012	BOD5	0.75	14	1.09	21	KG/D	NULL	**********	7.4	30	9.6	45	MG/L
13-Feb-2012	BOD5	0.58	14	0.95	21	KG/D	NULL	**********	5.1	30	7.6	45	MG/L
09-Mar-2012	BOD5	0.64	14	0.61	21	KG/D	NULL	**********	6.5	30	7.3	45	MG/L
10-Apr-2012	BOD5	0.84	14	1.40	21	KG/D	NULL	**********	8.1	30	14.3	45	MG/L
08-May-2012	BOD5	1.42	14	2.95	21	KG/D	NULL	**********	13.1	30	26.0	45	MG/L
08-Jun-2012	BOD5	0.82	14	0.88	21	KG/D	NULL	**********	7.0	30	8.3	45	MG/L
09-Jul-2012	BOD5	0.88	14	0.99	21	KG/D	NULL	**********	7.6	30	8.4	45	MG/L
10-Aug-2012	BOD5	1.13	14	1.56	21	KG/D	NULL	**********	9.8	30	12.8	45	MG/L
10-Sep-2012	BOD5	1.6	14	2.4	21	KG/D	NULL	**********	12.5	30	18.1	45	MG/L
10-Oct-2012	BOD5	0.88	14	1.40	21	KG/D	NULL	**********	7.1	30	10.1	45	MG/L
09-Nov-2012	BOD5	1.48	14	1.21	21	KG/D	NULL	**********	12.2	30	10.7	45	MG/L
07-Dec-2012	BOD5	0.83	14	1.48	21	KG/D	NULL	**********	5.3	30	7.4	45	MG/L
10-Jan-2013	BOD5	1.21	14	1.64	21	KG/D	NULL	**********	7.7	30	8.0	45	MG/L
08-Feb-2013	BOD5	1.37	14	1.49	21	KG/D	NULL	**********	6.9	30	7.6	45	MG/L
08-Mar-2013	BOD5	0.94	14	1.48	21	KG/D	NULL	**********	5.1	30	7.1	45	MG/L
09-Apr-2013	BOD5	1.52	14	3.18	21	KG/D	NULL	**********	7.7	30	15.0	45	MG/L
09-May-2013	BOD5	1.28	14	1.42	21	KG/D	NULL	**********	8.2	30	9.9	45	MG/L
10-Jun-2013	BOD5	1.04	14	1.35	21	KG/D	NULL	**********	6.9	30	8.0	45	MG/L
12-Jan-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	19.0	NL	19.0	NL	MG/L
10-Feb-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	11.0	NL	11.0	NL	MG/L
11-Mar-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	4.6	NL	4.6	NL	MG/L
13-Apr-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	3.1	NL	3.1	NL	MG/L
11-May-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	14.0	NL	17.0	NL	MG/L
11-Jun-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	4.6	NL	4.6	NL	MG/L
13-Jul-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	31.2	NL	31.2	NL	MG/L
11-Aug-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	26.3	NL	26.3	NL	MG/L
11-Sep-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	52.5	NL	52.5	NL	MG/L
13-Oct-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	8.46	NL	8.46	NL	MG/L
12-Nov-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	13.86	NL	13.86	NL	MG/L
11-Dec-2009	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	9.42	NL	9.42	NL	MG/L
11-Jan-2010	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	22.92	NL	22.92	NL	MG/L
12-Feb-2010	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	8.19	NL	8.19	NL	MG/L
11-Mar-2010	NITROGEN, TOTAL (AS N)	NULL	**********	NULL	**********	NULL	NULL	**********	17.27	NL	17.27	NL	MG/L

12-Apr-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	12.88	NL	12.88	NL	MG/L
12-May-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	12.70	NL	12.70	NL	MG/L
10-Jun-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	26.56	NL	26.56	NL	MG/L
12-Jul-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	25.34	NL	25.34	NL	MG/L
10-Aug-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	28.71	NL	28.77	NL	MG/L
13-Sep-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	40.36	NL	40.36	NL	MG/L
12-Oct-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	41.42	NL	41.42	NL	MG/L
12-Nov-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	41.07	NL	41.07	NL	MG/L
13-Dec-2010	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	45.00	NL	45.00	NL	MG/L
11-Jan-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	41.00	NL	41.00	NL	MG/L
10-Feb-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	46.0	NL	46.0	NL	MG/L
11-Mar-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	45.0	NL	45.0	NL	MG/L
11-Apr-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	27.2	NL	27.2	NL	MG/L
11-May-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	47.4	NL	47.4	NL	MG/L
13-Jun-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	30.0	NL	30.0	NL	MG/L
11-Jul-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	33.0	NL	33.0	NL	MG/L
12-Aug-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	25.8	NL	48	NL	MG/L
12-Sep-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	40.4	NL	40	NL	MG/L
06-Oct-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	29.4	NL	29	NL	MG/L
14-Nov-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	68	NL	68	NL	MG/L
13-Dec-2011	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	X	NL	X	NL	MG/L
11-Jan-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	46.8	NL	46.8	NL	MG/L
13-Feb-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	23.0	NL	23.0	NL	MG/L
09-Mar-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	4.3	NL	4.3	NL	MG/L
10-Apr-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	24.0	NL	24.0	NL	MG/L
08-May-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	4.0	NL	4.0	NL	MG/L
08-Jun-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	7.8	NL	2.5	NL	MG/L
09-Jul-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	19.0	NL	19.0	NL	MG/L
10-Aug-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	8.4	NL	8.4	NL	MG/L
10-Sep-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	25	NL	25	NL	MG/L
10-Oct-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	27.0	NL	27.0	NL	MG/L
09-Nov-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	32	NL	32	NL	MG/L
07-Dec-2012	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	29	NL	29	NL	MG/L
10-Jan-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	13.0	NL	13.0	NL	MG/L
08-Feb-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	28.7	NL	28.7	NL	MG/L
08-Mar-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	25.0	NL	25.0	NL	MG/L
09-Apr-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	26.2	NL	26.9	NL	MG/L
09-May-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	19.8	NL	19.8	NL	MG/L
10-Jun-2013	NITROGEN, TOTAL (AS N)	NULL	*********	NULL	*********	NULL	NULL	*********	15.8	NL	15.8	NL	MG/L
12-Jan-2009	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.6	8.5	SU
10-Feb-2009	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.9	8.5	SU
11-Mar-2009	PH	NULL	*********	NULL	*********	NULL	7.1	6.5	NULL	*********	7.8	8.5	SU
13-Apr-2009	PH	NULL	*********	NULL	*********	NULL	7.1	6.5	NULL	*********	7.9	8.5	SU

11-May-2009	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.4	8.5	SU
11-Jun-2009	PH	NULL	*********	NULL	*********	NULL	6.6	6.5	NULL	*********	7.3	8.5	SU
13-Jul-2009	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.8	8.5	SU
11-Aug-2009	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.7	8.5	SU
11-Sep-2009	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.7	8.5	SU
13-Oct-2009	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	8.0	8.5	SU
12-Nov-2009	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	8.0	8.5	SU
11-Dec-2009	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.8	8.5	SU
11-Jan-2010	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.7	8.5	SU
12-Feb-2010	PH	NULL	*********	NULL	*********	NULL	6.6	6.5	NULL	*********	7.6	8.5	SU
11-Mar-2010	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.6	8.5	SU
12-Apr-2010	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.4	8.5	SU
12-May-2010	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.8	8.5	SU
10-Jun-2010	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.4	8.5	SU
12-Jul-2010	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.5	8.5	SU
10-Aug-2010	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.6	8.5	SU
13-Sep-2010	PH	NULL	*********	NULL	*********	NULL	6.6	6.5	NULL	*********	7.3	8.5	SU
12-Oct-2010	PH	NULL	*********	NULL	*********	NULL	6.5	6.5	NULL	*********	7.5	8.5	SU
12-Nov-2010	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.5	8.5	SU
13-Dec-2010	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.5	8.5	SU
11-Jan-2011	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.6	8.5	SU
10-Feb-2011	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.8	8.5	SU
11-Mar-2011	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.5	8.5	SU
11-Apr-2011	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.4	8.5	SU
11-May-2011	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.4	8.5	SU
13-Jun-2011	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.5	8.5	SU
11-Jul-2011	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.5	8.5	SU
12-Aug-2011	PH	NULL	*********	NULL	*********	NULL	6.6	6.5	NULL	*********	7.4	8.5	SU
12-Sep-2011	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.4	8.5	SU
06-Oct-2011	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.6	8.5	SU
14-Nov-2011	PH	NULL	*********	NULL	*********	NULL	6.6	6.5	NULL	*********	7.2	8.5	SU
13-Dec-2011	PH	NULL	*********	NULL	*********	NULL	6.6	6.5	NULL	*********	7.4	8.5	SU
11-Jan-2012	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.3	8.5	SU
13-Feb-2012	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.3	8.5	SU
09-Mar-2012	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.4	8.5	SU
10-Apr-2012	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.5	8.5	SU
08-May-2012	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.3	8.5	SU
08-Jun-2012	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.5	8.5	SU
09-Jul-2012	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.6	8.5	SU
10-Aug-2012	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	8.0	8.5	SU
10-Sep-2012	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.5	8.5	SU
10-Oct-2012	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.8	8.5	SU
09-Nov-2012	PH	NULL	*********	NULL	*********	NULL	6.7	6.5	NULL	*********	7.5	8.5	SU

07-Dec-2012	PH	NULL	*********	NULL	*********	NULL	6.8	6.5	NULL	*********	7.6	8.5	SU
10-Jan-2013	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.7	8.5	SU
08-Feb-2013	PH	NULL	*********	NULL	*********	NULL	7.1	6.5	NULL	*********	8.1	8.5	SU
08-Mar-2013	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.6	8.5	SU
09-Apr-2013	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.7	8.5	SU
09-May-2013	PH	NULL	*********	NULL	*********	NULL	6.9	6.5	NULL	*********	7.7	8.5	SU
10-Jun-2013	PH	NULL	*********	NULL	*********	NULL	7.0	6.5	NULL	*********	7.7	8.5	SU
							90th percentile: 7.8						
							10th percentile: 6.7						
12-Jan-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.6	NL	5.6	NL	MG/L
10-Feb-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.5	NL	6.5	NL	MG/L
11-Mar-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.0	NL	6.0	NL	MG/L
13-Apr-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.3	NL	4.3	NL	MG/L
11-May-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.8	NL	6.8	NL	MG/L
11-Jun-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	14.0	NL	14.0	NL	MG/L
13-Jul-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.34	NL	6.34	NL	MG/L
11-Aug-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	7.18	NL	7.18	NL	MG/L
11-Sep-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	7.50	NL	7.50	NL	MG/L
13-Oct-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.76	NL	5.76	NL	MG/L
12-Nov-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	3.05	NL	3.05	NL	MG/L
11-Dec-2009	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.38	NL	5.38	NL	MG/L
11-Jan-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.65	NL	6.65	NL	MG/L
12-Feb-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	2.93	NL	2.93	NL	MG/L
11-Mar-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	2.57	NL	2.57	NL	MG/L
12-Apr-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.08	NL	4.08	NL	MG/L
12-May-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.04	NL	5.04	NL	MG/L
10-Jun-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.93	NL	5.93	NL	MG/L
12-Jul-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.23	NL	6.23	NL	MG/L
10-Aug-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	3.83	NL	3.83	NL	MG/L
13-Sep-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.66	NL	6.66	NL	MG/L
12-Oct-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.57	NL	6.57	NL	MG/L
12-Nov-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.23	NL	5.23	NL	MG/L
13-Dec-2010	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.70	NL	4.70	NL	MG/L
11-Jan-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.50	NL	4.50	NL	MG/L
10-Feb-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.6	NL	4.6	NL	MG/L
11-Mar-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.4	NL	4.4	NL	MG/L
11-Apr-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	3.1	NL	3.1	NL	MG/L
11-May-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.7	NL	5.7	NL	MG/L
13-Jun-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.6	NL	4.3	NL	MG/L
11-Jul-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.2	NL	4.2	NL	MG/L
12-Aug-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.6	NL	4.6	NL	MG/L
12-Sep-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.8	NL	5.8	NL	MG/L

06-Oct-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	3.4	NL	3.4	NL	MG/L
14-Nov-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.0	NL	5.0	NL	MG/L
13-Dec-2011	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	X	NL	X	NL	MG/L
11-Jan-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.5	NL	4.5	NL	MG/L
13-Feb-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.4	NL	4.4	NL	MG/L
09-Mar-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.3	NL	4.3	NL	MG/L
10-Apr-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	3.8	NL	3.8	NL	MG/L
08-May-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.4	NL	4.4	NL	MG/L
08-Jun-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.3	NL	4.3	NL	MG/L
09-Jul-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.7	NL	4.7	NL	MG/L
10-Aug-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.5	NL	6.5	NL	MG/L
10-Sep-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.7	NL	4.7	NL	MG/L
10-Oct-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.2	NL	6.2	NL	MG/L
09-Nov-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.7	NL	4.7	NL	MG/L
07-Dec-2012	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.3	NL	4.3	NL	MG/L
10-Jan-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.4	NL	4.4	NL	MG/L
08-Feb-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	3.9	NL	3.9	NL	MG/L
08-Mar-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	3.8	NL	3.8	NL	MG/L
09-Apr-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	6.0	NL	8.0	NL	MG/L
09-May-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	5.1	NL	5.1	NL	MG/L
10-Jun-2013	PHOSPHORUS, TOTAL (AS P)	NULL	*********	NULL	*********	NULL	NULL	*********	4.6	NL	4.6	NL	MG/L
12-Jan-2009	TSS	0.81	14	0.90	21	KG/D	NULL	*********	12.6	30	15.0	45	MG/L
10-Feb-2009	TSS	0.60	14	0.93	21	KG/D	NULL	*********	7.6	30	11.2	45	MG/L
11-Mar-2009	TSS	0.60	14	1.00	21	KG/D	NULL	*********	9.0	30	12.0	45	MG/L
13-Apr-2009	TSS	0.51	14	0.65	21	KG/D	NULL	*********	8.8	30	11.0	45	MG/L
11-May-2009	TSS	0.64	14	0.76	21	KG/D	NULL	*********	8.8	30	10.0	45	MG/L
11-Jun-2009	TSS	1.04	14	1.39	21	KG/D	NULL	*********	17.6	30	21.6	45	MG/L
13-Jul-2009	TSS	0.83	14	1.04	21	KG/D	NULL	*********	11.90	30	13.10	45	MG/L
11-Aug-2009	TSS	0.27	14	0.31	21	KG/D	NULL	*********	4.76	30	6.30	45	MG/L
11-Sep-2009	TSS	0.36	14	0.45	21	KG/D	NULL	*********	6.20	30	7.00	45	MG/L
13-Oct-2009	TSS	0.44	14	0.76	21	KG/D	NULL	*********	7.12	30	11.80	45	MG/L
12-Nov-2009	TSS	0.31	14	0.37	21	KG/D	NULL	*********	4.90	30	5.40	45	MG/L
11-Dec-2009	TSS	0.33	14	0.40	21	KG/D	NULL	*********	5.98	30	7.00	45	MG/L
11-Jan-2010	TSS	0.50	14	0.67	21	KG/D	NULL	*********	6.90	30	8.80	45	MG/L
12-Feb-2010	TSS	0.30	14	0.40	21	KG/D	NULL	*********	4.55	30	5.90	45	MG/L
11-Mar-2010	TSS	0.64	14	1.13	21	KG/D	NULL	*********	9.65	30	17.60	45	MG/L
12-Apr-2010	TSS	0.8	14	0.7	21	KG/D	NULL	*********	8.9	30	9.0	45	MG/L
12-May-2010	TSS	0.65	14	0.74	21	KG/D	NULL	*********	9.33	30	10.30	45	MG/L
10-Jun-2010	TSS	0.82	14	1.32	21	KG/D	NULL	*********	10.40	30	13.40	45	MG/L
12-Jul-2010	TSS	0.9	14	2.2	21	KG/D	NULL	*********	14.3	30	34.6	45	MG/L
10-Aug-2010	TSS	0.37	14	0.48	21	KG/D	NULL	*********	5.1	30	6.2	45	MG/L
13-Sep-2010	TSS	0.74	14	1.02	21	KG/D	NULL	*********	11.1	30	14.2	45	MG/L
12-Oct-2010	TSS	0.94	14	1.07	21	KG/D	NULL	*********	13.6	30	16.9	45	MG/L

12-Nov-2010	TSS	0.73	14	0.86	21	KG/D	NULL	*********	11.1	30	12.8	45	MG/L
13-Dec-2010	TSS	0.97	14	0.90	21	KG/D	NULL	*********	12.5	30	14.0	45	MG/L
11-Jan-2011	TSS	1.04	14	0.87	21	KG/D	NULL	*********	12.2	30	11.0	45	MG/L
10-Feb-2011	TSS	0.91	14	1.19	21	KG/D	NULL	*********	12.3	30	15.0	45	MG/L
11-Mar-2011	TSS	0.95	14	1.10	21	KG/D	NULL	*********	9.7	30	14.6	45	MG/L
11-Apr-2011	TSS	1.24	14	1.61	21	KG/D	NULL	*********	13.7	30	17.7	45	MG/L
11-May-2011	TSS	1.36	14	1.79	21	KG/D	NULL	*********	12.2	30	19.7	45	MG/L
13-Jun-2011	TSS	1.45	14	2.17	21	KG/D	NULL	*********	14.8	30	26.0	45	MG/L
11-Jul-2011	TSS	0.48	14	0.52	21	KG/D	NULL	*********	4.9	30	4.6	45	MG/L
12-Aug-2011	TSS	0.58	14	0.65	21	KG/D	NULL	*********	7.6	30	9.0	45	MG/L
12-Sep-2011	TSS	0.83	14	1.67	21	KG/D	NULL	*********	9.7	30	21.0	45	MG/L
06-Oct-2011	TSS	1.15	14	2.43	21	KG/D	NULL	*********	8.8	30	14.6	45	MG/L
14-Nov-2011	TSS	0.73	14	1.82	21	KG/D	NULL	*********	11.3	30	19.3	45	MG/L
13-Dec-2011	TSS	0.55	14	1.13	21	KG/D	NULL	*********	5.2	30	13.6	45	MG/L
11-Jan-2012	TSS	0.80	14	1.09	21	KG/D	NULL	*********	8.0	30	10.6	45	MG/L
13-Feb-2012	TSS	0.29	14	0.36	21	KG/D	NULL	*********	2.6	30	3.4	45	MG/L
09-Mar-2012	TSS	0.44	14	0.70	21	KG/D	NULL	*********	4.6	30	8.8	45	MG/L
10-Apr-2012	TSS	1.65	14	4.67	21	KG/D	NULL	*********	16.4	30	47.5	45	MG/L
08-May-2012	TSS	0.36	14	0.46	21	KG/D	NULL	*********	3.3	30	4.4	45	MG/L
08-Jun-2012	TSS	0.39	14	0.34	21	KG/D	NULL	*********	3.2	30	2.4	45	MG/L
09-Jul-2012	TSS	0.24	14	0.34	21	KG/D	NULL	*********	2.1	30	3.0	45	MG/L
10-Aug-2012	TSS	0.15	14	0.27	21	KG/D	NULL	*********	1.3	30	2.3	45	MG/L
10-Sep-2012	TSS	0.4	14	0.6	21	KG/D	NULL	*********	2.7	30	4.0	45	MG/L
10-Oct-2012	TSS	0.24	14	0.47	21	KG/D	NULL	*********	1.9	30	3.1	45	MG/L
09-Nov-2012	TSS	1.19	14	2.18	21	KG/D	NULL	*********	9.2	30	15.6	45	MG/L
07-Dec-2012	TSS	1.32	14	2.22	21	KG/D	NULL	*********	8.7	30	15.8	45	MG/L
10-Jan-2013	TSS	1.20	14	1.51	21	KG/D	NULL	*********	7.7	30	8.5	45	MG/L
08-Feb-2013	TSS	1.04	14	1.84	21	KG/D	NULL	*********	5.1	30	9.3	45	MG/L
08-Mar-2013	TSS	2.06	14	2.07	21	KG/D	NULL	*********	11.0	30	12.4	45	MG/L
09-Apr-2013	TSS	1.53	14	2.76	21	KG/D	NULL	*********	7.5	30	13.0	45	MG/L
09-May-2013	TSS	1.23	14	2.36	21	KG/D	NULL	*********	8.9	30	20.8	45	MG/L
10-Jun-2013	TSS	1.14	14	2.42	21	KG/D	NULL	*********	6.8	30	14.2	45	MG/L

Mixing Zone Predictions for Elysian Heights STP

Effluent Flow = 0.120 MGD
Stream 7Q10 = 565.7 MGD
Stream 30Q10 = 668.0 MGD
Stream 1Q10 = 493.1 MGD
Stream slope = 0.00265 ft/ft
Stream width = 213 ft
Bottom scale = 3
Channel scale = 1

Low Flow

Mixing Zone Predictions @ 7Q10

Depth = 2.9316 ft
Length = 17360.69 ft
Velocity = 1.4027 ft/sec
Residence Time = .1432 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 3.2427 ft
Length = 15931.23 ft
Velocity = 1.4974 ft/sec
Residence Time = .1231 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 2.6974 ft
Length = 18634.82 ft
Velocity = 1.3289 ft/sec
Residence Time = 3.8953 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 25.67% of the 1Q10 is used.

Mixing Zone Predictions for Elysian Heights STP

HIGH FLOW

Effluent Flow = 0.120 MGD
Stream 7Q10 = 60760.3 MGD
Stream 30Q10 = 28508.0 MGD
Stream 1Q10 = 123550.8 MGD
Stream slope = 0.00265 ft/ft
Stream width = 600 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 26.6614 ft
Length = 21054.33 ft
Velocity = 5.8797 ft/sec
Residence Time = .0414 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 16.7234 ft
Length = 31701.91 ft
Velocity = 4.398 ft/sec
Residence Time = .0834 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = 41.5488 ft
Length = 14121.34 ft
Velocity = 7.6719 ft/sec
Residence Time = .5113 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

6/19/2013 2:19:26 PM

Facility = Elysian Heights STP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 7140
WLAc = 1310
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

9

7/31/2013 10:28:53 AM

Facility = Elysian Heights STP
Chemical = Chlorine
Chronic averaging period = 4
WLAa = 4
WLAc = 4
Q.L. = 0.2
# samples/mo. = 28
# samples/wk. = 7

Summary of Statistics:

observations = 1
Expected Value = 20
Variance = 144
C.V. = 0.6
97th percentile daily values = 48.6683
97th percentile 4 day average = 33.2758
97th percentile 30 day average= 24.1210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 4
Average Weekly limit = 2.44282882700811
Average Monthly LImit = 1.99437267042921

The data are:

20

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Frederick County, Maryland.

PUBLIC COMMENT PERIOD: October 10, 2013 to November 8, 2013

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board.

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Loudoun County Sanitation Authority
P.O. Box 4000, Ashburn, VA 20146
VA0092380

NAME AND ADDRESS OF FACILITY: Elysian Heights Sewage Treatment Plant
43254 Heavenly Circle, Leesburg, VA 20176

PROJECT DESCRIPTION: Loudoun County Sanitation Authority has applied for a reissuance of a permit for the public Elysian Heights Sewage Treatment Plant. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 0.120 million gallons per day into a water body. Sludge from the treatment process will be transported to the Broad Run Water Reclamation Facility (VA0091383) for further treatment and disposal. The facility proposes to release the treated sewage in the Potomac River in Frederick County, Maryland in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, biochemical oxygen demand, total suspended solids, dissolved oxygen, ammonia as N, E. coli and chlorine. The permit also requires monitoring for total nitrogen and total phosphorus.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, email, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Douglas Frasier
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: 703-583-3873 Email: Douglas.Frasier@deq.virginia.gov Fax: 703-583-3821